THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal ESTABLISHED 1835 · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad.....£2 5s. 0d.
Single Copies.....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 66. No. 15 FRIDAY, APRIL 9, 1937

CONTENTS

	PAGE
Editorials	689
Letters to the Editor	694
Publications Received	695
The Scrap Heap	696
Overseas Railway Affairs	697
British Locomotive Types—L.N.E.R.	700
Road Transport Section	703
Railway News Section	715
Personal	715
News Articles	718
Notes and News	728
Contracts and Tenders	730
Legal and Official Notices	731
Share Market	732

Railway Safety

ONE of the things about a serious railway accident, such as that which befell two Southern Railway electric trains in London last Friday, is the disproportionate amount of publicity it receives—disproportionate in comparison with other forms of accident, and particularly those on the roads. Granted that nearly everybody uses the railway, and thus practically all are concerned in the safety of travel by rail, but when tramcars and buses are added to other forms of road transport, are we not almost as much interested in safety on the highway? In fact, as pedestrians, we are more nearly affected by road safety than rail safety. Yet a motor accident, in which two or more passengers are killed, or where a couple of pedestrians or a cyclist are run down in the dark, is dismissed in a paragraph. We submit that the explanation for this contrast lies mainly in the fact that railway accidents occur, comparatively, only occasionally; road accidents, on the contrary, have come to be regarded as an ordinary incident in the day's events, to be dismissed—if in fact mentioned at all—by a six-line paragraph in the general news. The safety of railways, on the other hand, is accepted by the public as a foregone conclusion, and the intimation that a mishap has occurred comes as a surprise and is given prominent notice. That, perhaps, is a penalty British railways must pay for having done so well. It is hard luck, but the brighter the sword, the more noticeable is any tarnish, and thus, in this matter, their very virtue magnifies a fault and their strength more readily reveals a weakness.

Railway Air Services

The Railway Air Services summer programme is to come into operation a little earlier this year so as to provide facilities for Coronation visitors. On and from May 10, therefore, 76 regular services will be worked over the routes established last year; these are set out in detail on page 719. Sir Harold Hartley, Chairman of Railway Air Services Limited, who announced the programme this week, drew particular attention to the new afternoon service to be introduced on the London—Belfast Royal Mail route, and the intensification of the services to Blackpool. Sir Harold also mentioned that the control of Railway Air Services had been widened during the past year by the addition of Coast Lines Limited to the present partnership of the four main-line railways, Imperial Airways Limited, and, in the case of the Manx Airway, the Isle of Man Steam Packet Company. Through Channel Islands Airways Limited, the Great Western and Southern Railways are also associated with Whitehall Securities Limited in the operation of Jersey and Guernsey Airways. There can be no cause for any suggestion of railway monopolisation of the air; indeed, the railways have endeavoured to draw into partnership those concerns likely to be interested in the development of internal air transport.

* * * *

The Week's Traffics

Latest returns of the four group companies cover the week including Easter Monday, 1937, and compare with those for an ordinary week in 1936, so that, as shown in the accompanying tables, passenger train receipts are for the most part up and general merchandise traffics are substantially down. Comparing the complete Easter holiday periods for the two years it will be found that passenger train earnings of the four companies for the 1937 fortnight totalled £2,919,000, a net decrease of £35,000 on 1936 in spite of the Southern's increase of £16,000. General merchandise receipts for the 1937 holiday fortnight were £1,996,500, an increase of £111,000, and coal traffics totalled £1,178,500, an increase of £157,000.

	13th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	+ 4,000	− 63,000	− 15,000	− 74,000	+ 458,000	+ 3·11
L.N.E.R. ..	+ 10,000	− 20,000	+ 1,000	− 9,000	+ 189,000	+ 1·73
G.W.R. ..	—	− 32,000	− 13,000	− 45,000	+ 198,000	+ 3·31
S.R.	+ 16,000	− 7,500	+ 2,500	+ 11,000	+ 172,000	+ 3·88

London Transport receipts for the past week were £584,200, an increase of £26,400.

* * * *

Goods "On Time"

Although it is in relation to its effect upon passenger working that the L.M.S.R. "On Time" movement is chiefly brought into the public eye, study of its official organ, *On Time*, shows that equal importance is attached to the encouragement and promotion of expeditious goods handling. As a recent leading article pointed out, the smooth working of the goods organisation depends upon the efficiency and resource of very many sections of the staff—from those in control offices to the country van driver. Notable achievements by all engaged in goods work are recorded from time to time, as when the staff at Canada Dock station, Liverpool, was called upon at short notice to unload 1,000 tons of copper from a steamer, on condition that the whole consignment should be cleared from the quay within one day. As the copper could not be loaded direct into rail wagons on the dock estate, it had to be carted to the station by a fleet of over forty horses. Needless to say, the job was completed "on time." Revival of industry imposes still more exacting demands upon the L.M.S.R. staff, but the reader of *On Time* or of the Commercial Department journal *Quota*

News, gains the conviction that both movements are fostering a spirit which almost relishes difficulties.

* * * *

Overseas Railway Traffics

The traffic returns of Argentine railways for three-quarters of their financial year, which were published last week, give some idea of their prospects for the twelve months. At the corresponding date a year ago the Buenos Ayres & Pacific showed an increase of £268,932 and one of 8·7 per cent. in currency, whereas the Central Argentine was only £87,667 up in sterling, and only 1·37 per cent. up in currency, and the Buenos Ayres Western increase in sterling was £5,969. The Buenos Ayres Great Southern on the other hand was £508,494 down in sterling and 9·36 per cent. down in currency. As will be seen from the accompanying table all these railways for the 39 weeks are well ahead in traffics over the sterling figures of two years ago. Compared with last year the Great Southern shows an increase of 8,859,000 in currency and the Central Argentine one of 18,663,530.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
		£	£	£	£
Buenos Ayres & Pacific ..	39th	125,248	+ 23,662	3,535,030	+ 328,585
Buenos Ayres Great Southern ..	39th	192,618	+ 34,040	5,804,919	+ 685,841
Buenos Ayres Western	39th	56,514	+ 9,569	1,884,444	+ 151,574
Central Argentine	39th	165,720	+ 58,082	5,932,366	+ 1,237,373
Canadian Pacific	12th	517,000	+ 44,800	5,531,800	+ 328,000
Bombay, Baroda & Central India	48th	290,175	+ 22,050	8,650,725	+ 526,200

The increase in net earnings of the Canadian Pacific for the first two months of 1937 amounts to £85,000, almost exactly the same increase as for the corresponding period in 1936.

* * * *

Holyhead Harbour and the Mails

Some interesting points as to Holyhead harbour and the Holyhead—Kingstown (Dun Laoghaire) mail steamship service were brought out in the course of the proceedings on the London Midland & Scottish Railway Bill before the Unopposed Bills Committee of the House of Commons on March 23. A clause in the Bill authorises the company to enlarge its present powers of levying rates and charges at Holyhead harbour, which were fixed in 1823 and bear no relation to those at other harbours. The company has a long lease of the harbour granted by the Ministry of Transport in 1921, when the term of the earlier lease was considerably extended, and it has spent very large sums on improvements there. Holyhead is at present in effect purely an L.M.S.R. harbour, and the company's steamers have since November 28, 1920, under contract with the Post Office, carried the mails between Holyhead and Kingstown, which were previously conveyed by the City of Dublin Steampacket Company. It also practically monopolises traffic between Holyhead and Dublin and Dun Laoghaire. The present mail contract expires in a few years' time, and there is the possibility of Irish steamship services coming to Holyhead, and of a change of policy on the part of the British Government regarding the carriage of mails. Because of the uncertain future the company is accordingly asking Parliament to give it powers to deal on a commercial basis with passengers, merchandise, and ships as at other harbours. The Committee found the preamble of the Bill proved.

* * * *

Channel Islands Produce Traffic

The Channel Islands occupy a unique position in relation to the British Crown, for, as part of the Dukedom of Normandy, they constitute the oldest allegiance. In fact, the Channel Islanders take pride in saying that their country conquered England in 1066. The modern importance of the islands as holiday resorts is well known, but fewer persons realise that their produce export traffic is of sufficient size to justify the maintenance of an L.M.S.R. agency. Yet the Channel Islands, considered as an outpost of the L.M.S.R., are quite important, and were the scene of much activity in pre-war days, when competition between railway companies was very keen. The G.W.R. and the L.S.W.R. were the resident companies, but several of the northern companies established representation there with a view to securing a share of the traffic. Among others, the Midland and L.N.W.R. set up a joint agency in Guernsey, which in due course became, and now continues as, the local traffic agency of the L.M.S.R. By this arrangement the L.M.S.R. secures the passage over its system of large quantities of tomatoes, flowers, and other produce, which begin their transit on the steamers and rails of the Southern and Great Western Railways, and are subsequently transferred to the L.M.S.R. for conveyance to destinations throughout the provinces.

* * * *

New German Railway Bridges

It is pleasing to see how the interchange of technical knowledge has been increasing during the last few years. Specialists in various subjects have been invited to different countries to give lectures, and it is usually found that the meetings are well attended. A recent case has been the visit of Dr. Ing Schaper, of the German State Railway, who on March 18 gave a lecture entitled "New German Railway Bridges" to a combined meeting of the Institution of Civil Engineers, and the Institution of Structural Engineers. Although Dr. Schaper said he always considered this country as "the classic country of bridges," because of the great pioneer work which was carried out in the last century, his lecture showed that at the present time Germany pays more attention to research and the appearance of structures than may be thought to be the case over here. As far as roads are concerned, we do try to make new bridges fit in with their surroundings, but railways do not seem to be, generally speaking, nearly so thoughtful. Dr. Schaper showed that welded spans up to nearly 340 ft. for roadways and 175 ft. for railways have been successfully constructed after considerable research, with a saving in cost. This is much in advance of anything carried out in this country, and it seems that British engineers should give the matter careful consideration. An abstract of Dr. Schaper's lecture is given on page 723 of this issue.

* * * *

Abolishing the Quainton Road Speed Restriction

The original railway lines at Quainton Road were laid as part of the Aylesbury & Buckingham Railway, with, of course, no junction at Quainton Road. That railway, which was opened on September 23, 1868, extended from Aylesbury to Verney Junction. It was taken over by the Metropolitan Railway from July 1, 1891, and the junction at Quainton Road was not brought into use until 1898 when tracks of the London extension of the Great Central Railway joined the Metropolitan at that point. As the G.C.R. was the second-comer, the alignment was not so favourable to trains proceeding over what is now an L.N.E.R. main line. It will be remembered that the passenger service between Quainton Road and Verney Junction was discontinued on July 4 of last year, and now it is officially announced that the L.N.E.R. is to carry out a re-alignment of its main line from Manchester to Marylebone at Quainton Road, which will result in the removal of the 25 m.p.h. speed restriction now applicable to L.N.E.R. express trains passing over this junction. When the work is completed a saving of two minutes in the timing of L.N.E.R. express trains is to be made.

Reflection in Signal Box Windows

Signal box lighting, as that of other buildings, has been improved in recent years, but it involves peculiar considerations to which enough attention is not always given. Not only is it necessary to have efficient lighting of the block indicators and other pieces of apparatus, upon the correct reading of which safe and prompt working depends, but this lighting must be kept within limits which will prevent reflections in the windows of interior objects strong enough to interfere with the signalman's outlook. White dials, diagrams, or printed instructions are especially troublesome. Herr Lehner, a Reichsbahn officer, of Regensburg, has investigated the subject lately, and has published the results in the *Organ für die Fortschritte des Eisenbahnwesens*. He found it possible to do with much less light than had been thought necessary, and yet have everything sufficiently visible to the signalman; while by adopting suitable colouring for walls and apparatus, eliminating all bright objects, such as brass dials, rings and push buttons, and concealing Morse telegraph equipment, window images could be so reduced in intensity as to give no trouble. A very moderate amount of reflected light, well distributed from comparatively low powered sources in suitable strip lanterns, gave the best results. The tests were made at 10 signal boxes, some power, some mechanical.

* * * *

A New Rail Treatment

A new approach to the rail wear problem is the process of "Brunorising," recently introduced at an American rail-mill. The idea is to refine the grain structure of the steel, and so to produce a steel with better resistance to wear, end batter, and fissuring. The method is to transfer the rails after rolling, and before they have cooled out, to a special furnace while they are still at a temperature of about 600 deg. C., there reheating them to about 800 deg. —well above the critical temperature (730 to 780 deg.)— and holding them at or about 800 deg. till they are Brunorised throughout. The makers can hardly expect general agreement, however, to their proposition, in support of the new process, that "nobody knows what causes fissures." As these columns have several times testified, English investigators first, and then American, have determined that the fissure which has proved so dangerous in rails is without question the product of internal stresses set up at a certain stage of the cooling out, and although there is not as yet full agreement as to the precise range of temperature at which the risk of fissuring is most acute, there has been sufficient confidence in the Sandberg method of retarded cooling to instal the Sandberg oven—or other closely-related treatments—at the great majority of British steelworks manufacturing rails, and at many Continental and American plants, not merely as the simplest and most effective safeguard against fissuring but as a practically certain cure. Further, if heat treatments are to be applied in a more positive sense toward improving the wearing capacity of rails, those aimed towards the production of sorbite or higher structural ranges would appear to offer better possibilities than the mere reduction of grain size.

* * * *

Road-Rail Co-ordination in India

Though it is still very far from attainment, the solution of the rail-road co-ordination problem in India is brought a step nearer by the granting of autonomous Government to each Province on the 1st of this month. In the Punjab and to a lesser degree in four other Provinces, Ministries have been formed which are likely to have the majorities of those Provinces behind them, a fact that will enable them to formulate measures for the control of road transport both severally and collectively before very long. In the other six Provinces, however, the position is still obscure. On the other hand the present Government of India and the Railway Board are both to be superseded by new Federal bodies sooner or later, and until these changes take place there is little prospect of any move being made on the railway side as it would be prejudicial to the new order of things. It is undoubtedly this attitude in both the Provinces and the Central Government that has delayed progress in this important matter of co-ordination up to the present. Until a Federal Government is in being and can negotiate with firmly established Provincial Governments, there is little chance of final settlement, though, no doubt, the preliminary spade work is already far advanced and awaiting that time. With so many conflicting interests involved, it is very difficult to foresee what form co-ordination will eventually take, but the scheme that is working so satisfactorily in Hyderabad State, and was described in our issue of March 12, might well be taken as a model.

* * * *

Jerky Starting

Passenger comfort is being increasingly studied on the railways in America, and means devised for further improving the lot of the traveller in this respect. Air-conditioning has been brought to a stage of high efficiency, and has done as much as anything towards the end in view. It is, however, realised by those responsible for the building and running of the trains that even when this has been added to other amenities, such as improved seating and window design, more harmonious selection of upholstery patterns and paintwork, subtle lighting effects, and other similar attractions, there still remains one very essential thing to be done, namely, to eliminate shock when starting and, indeed, anything that interferes with smooth riding of the vehicles on the track. What is particularly aimed at is the avoidance of jerky starting, and apparently it is generally considered that the best way of preventing this is by equipping the locomotives with boosters, it being held that by this means a train can be got under way smoothly, and accelerated quickly with no jolting of the passengers or strain on the engines and coaches. Regarded from this viewpoint it is claimed that if the booster is needed only for three minutes at a time, it justifies its use.

* * * *

Strap Snatchers

Among the more audacious forms of collecting favoured by reckless youth, we find the acquisition of railway carriage window straps the hardest to condone. Unfortunately, the removal of these useful accessories is in some quarters considered as setting the seal upon good fellowship, so that a host who finds his party beginning to drag in the course of the homeward journey will often perform the amputation in order to restore mirth among his guests. The sufferers are they who come the next morning. Early rising and a hurried breakfast blunt the faculties of reason, so that it is not realised until too late that a window without a strap must be either fully up or fully down. This bitter truth is revealed when the window has crashed to its lowest point, the pathetic remnants of its strap are jamming it so that it cannot be retrieved, and a shrewd wind starts blowing upon the tightly packed merchant princes within. Where such incidents are of frequent occurrence they tend to blot the railway escutcheon, giving rise to the villainous report that the same carriage is allowed to go on spreading its ghastly booby trap through successive weeks.

XUM

Royal Trains

CIRCUMSTANCES have changed entirely since Queen Victoria made her first journey in a railway train on the G.W.R. in 1842, and the practices of stationing men along the entire route and dispatching a pilot engine fifteen minutes in front of a Royal train have long been discontinued. In this more plebeian age members of the Royal family frequently travel by ordinary train in reserved compartments or saloons instead of asking for a Royal train to be used, and the Duke of Windsor was particularly fond of this informal mode of travel. The steady growth of this practice during the last few years has made it unnecessary for all the British main-line railway companies to maintain Royal trains for use when required, and accordingly some years ago it was decided that only the L.M.S.R. and L.N.E.R. Companies should keep Royal trains in commission, and that these should be lent to the other companies when necessary. Royal trains are still used from time to time, however, and on March 18 and 20 King George VI made his first journey as King in one of these, travelling from Euston to Huyton on the first date to see the Grand National and returning from Liverpool.

The safe conveyance of the Sovereign places considerable responsibility on the railway company concerned, and very great care is taken to ensure that no untoward event happens *en route*. When the desired timings for the special train have been agreed with the officials responsible for the King's journey, the company or companies concerned issue a special Royal train notice which contains in comprehensive detail the whole of the arrangements to be made. These notices, which are issued to every man affected, are also highly sought by members of the public, judging from the number of applications which are received for copies. The notice sets out the exact formation of the train, its timing at all intermediate places throughout the route, and full particulars of all diversions of other trains which may be necessary. Incidentally it may be mentioned that for ready identification by the staff, the engine of the Royal train always carries four head lamps or white discs by day, namely, one at the foot of the chimney, one at each end of the buffer beam, and one in the middle. After sunset and during foggy weather or falling snow, four white lights are carried in the same position. Detailed instructions are given in the Royal train notice regarding the method of signalling to be followed in dealing with the train to ensure that the line is clear in advance, and the procedure to be adopted in regard to the working of trains which are due to run on, cross or foul the line on which the Royal special is to run, is also set out specifically for the same purpose.

Should it be necessary for the Royal train to pass in the facing direction over points which are not equipped with facing point locks and bars, the instructions specify that the points must be secured by clips before the train passes over them. In this connection a story—probably apocryphal—is still current on one of our premier lines that one stationmaster, satisfying himself that the instructions contained in the notice had been strictly carried out, was horrified to find that one of his staff had duly secured the facing points by clips, but had clipped them over the running line instead of beneath! It is frequently the practice to suspend shunting operations on lines or sidings adjacent to the line on which the Royal special is to run, prior to and during the passage of the train, while certain other trains are stopped. Although the route of the train is not patrolled as in the past, it is customary to station railwaymen at all public road level crossings, stations, occupation level crossings, and foot crossings along the route. Where the Royal train has to pass through tunnels, arrangements are made for the lines to be inspected carefully immediately prior to the running of the train to see that the line is quite safe and free from obstruction, and men are generally stationed at reasonable intervals throughout each tunnel to ensure that the line is kept free. For the same reason no train is allowed to pass through such tunnels for a specified time prior to the arrival of the Royal train. While these arrangements involve the company or companies concerned in an appreciable expense, the use of a Royal train has a definite publicity value for the line. Further, first class fares are paid for every member of the Royal party, together with a mileage charge for the use of the special train; the latter sum is reduced by half for the return journey as in the case of special trains provided for members of the general public.

* * * *

Canadian Pacific Railway

FROM its railway operations during the year 1936 the Canadian Pacific Railway Company secured an increase of $8,883,858, or 6·9 per cent., but working expenses, including taxes, advanced by $7,970,271 or 7·4 per cent., and the increase in net earnings was only $913,587. From "other income—net" the company received in 1936 $10,198,522, as against $8,145,494, this improvement being chiefly due to an increase of $1,177,750 in the dividends received from the Consolidated Mining & Smelting Co. of Canada, Ltd. Net earnings from ocean and coastal steamships before depreciation increased by $317,266, and the net earnings from hotels amounted to $672,796, out of which a sum of $620,094 has been transferred to hotel depreciation reserve. The full annual depreciation requirement for ocean and coastal fleets, amounting to $3,567,151, was appropriated from income account. Fixed charges, amounting to $23,913,298, were $246,639 less than in 1935, chiefly because of the redemption of 5-year notes by means of issues carrying lower rates of interest. As already mentioned in the preliminary financial statement published in our issue of March 12, at page 515, a dividend of 1 per cent. is to be paid on the 4 per cent. preference stock. Some railway operating figures are compared in the accompanying table:—

	1936	1935
Miles open	17,223	17,289
Train-miles	36,606,897	34,952,519
Passengers	7,387,406	7,423,634
Tons, revenue freight	27,985,478	26,094,183
Average haul, miles	408·22	403·22
Operating ratio, per cent.	83·18	82·73
	$	$
Freight earnings	106,045,022	98,375,515
Passenger earnings	15,665,347	15,155,639
Gross earnings	138,562,763	129,678,905
Working expenses	115,251,652	107,281,381
Net earnings	23,311,111	22,397,524
Net income	29,942,482	26,992,022

An improvement in gross earnings was shown in each month. The increase during the first three quarters of the year was 8·6 per cent. whereas in the last quarter it was only 2·6 per cent. The less favourable showing in the last quarter was largely due to the extraordinarily small grain crop which followed the severe drought in Western Canada. Passenger earnings increased $509,708 or 3·4 per cent. As from June 1, the passenger surcharges, included as part of sleeping and parlour car fares, were eliminated, and the basic ordinary coach fare was reduced from 3·45 cents to 3 cents a mile. All through fares between points competitive with United States railroads were also adjusted to meet the reductions ordered in Eastern United States by the Interstate Commerce Commission. Freight earnings increased $7,669,508 or 7·8 per cent., gains being recorded in nearly

all the principal commodities. More than one half of the increase in working expenses was under maintenance, which cost $4,432,378, or 10·4 per cent., more than in 1935. Transportation expenses increased $2,394,237 or 5 per cent., but their ratio to gross earnings was slightly reduced. The scale of deductions from basic rates of pay of officers and employees made effective in 1935 was continued throughout 1936.

During the year the abandonment of 93 miles of lines was completed. After allowing for salvage, the net charge to profit and loss on account of these abandonments was $2,029,550. Results of operation of the Minneapolis, St. Paul & Sault Ste. Marie Railway (Soo Line) for the past year were disappointing. A moderate increase in general traffic was largely neutralised by an almost complete failure of the grain crop in the territory served. Working expenses were increased by the imposition of social security taxes and the restoration of basic wage rates. The Canadian Pacific Company advanced to the Soo Line $3,659,645 to make up the deficiency in the amount available to meet interest obligations guaranteed by the Canadian Pacific. Two co-operative measures with the Canadian National Railways were put into effect, and the annual economy from co-operation is estimated at $1,662,000, one half of which will accrue to each company. The company has since 1903 maintained a system of voluntary pensions without contribution from the employees. A scheme of contributory pensions has now been approved, to take effect as from January 1, 1937. Participation is optional for employees in the service prior to that date, but compulsory for those entering the service thereafter. Of the eligible employees, 31,600, or approximately 70 per cent., had elected before the end of 1936 to become contributors. Contributions on the part of the company remain voluntary.

* * * *

Canadian National Railways

FIGURES contained in the recently-published report of the Canadian National Railways for the year 1936 indicate that the severity of the depression is gradually ceasing, in that operating revenues have progressively increased from the low point of $149,519,742 in 1933. It is expected that progress will continue to be made during 1937, probably with accelerating momentum. In comparison with 1935 gross operating revenues increased in 1936 by $13,425,987, or 7·75 per cent. The advance in freight revenues was $11,680,595, or 8·73 per cent., with an increase in tonnage of 4,643,334 tons, or 11·96 per cent. All regions reported increases in tonnage in nearly all the principal commodities. Passenger revenues improved by $367,917, or 2·21 per cent. A reduction of approximately 13 per cent. in basic passenger fares was made effective as from June 1, 1936, and sleeping and parlour car surcharges were cancelled. The number of passengers carried increased by 377,705, and the average length of journey from 79·21 miles to 82·31 miles. Hotel revenues continued to improve and as a whole produced an operating profit, after taxes, of $160,017. There were also increases in express and mail revenues.

Operating expenses increased by $12,551,441, or 7·9 per cent. Of this increase $4,400,000 was necessitated by additional business, $1,181,000 was caused by snow, ice, and floods, $1,756,000 was in maintenance of way, and $2,500,000 in maintenance of rolling stock. The average number of employees in service during 1936 was 78,836, as compared with 75,053 in 1935, and the total payroll expense rose from $104,861,521 to $111,221,129. On May 1, 1935, the 12 per cent. wage deduction was reduced to 10 per cent., and this deduction was in force throughout 1936. Beginning January 1, 1937, the main shops of the system have been placed on an increased schedule of five days a week. A continued improvement in freight service operation is indicated by the following averages. Gross tons per freight train increased from 1,368 to 1,399, and net tons from 564 to 578; gross ton-miles per freight train hour from 21,748 to 22,351, and miles per freight train hour from 15·9 to 16. Fuel consumption per 1,000 gross ton-miles was reduced from 126 lb. to 124 lb. The accompanying table compares figures for the past two years:—

	1936	1935
Average miles operated ..	23,554	23,652
Tons—revenue freight ..	43,451,052	38,807,718
Ton-miles—revenue freight ..	14,813,796,415	13,508,955,208
Average haul, miles	340·93	348·10
Passengers	10,098,973	9,721,268
Train-miles	46,487,143	44,251,753
Operating ratio, per cent. ..	91·89	91·77
	$	$
Freight revenue	145,488,142	133,807,546
Passenger revenue	17,021,746	16,653,829
Total railway revenue ..	186,610,489	173,184,502
Total operating expenses ..	171,477,690	158,926,249
Net operating revenue ..	15,132,799	14,258,253
Net available for interest ..	6,408,911	6,830,999
Cash deficit	43,303,394	47,421,465

Interest on funded debt held by the public required $49,184,623 in 1936, a decrease of $4,284,169 brought about to a large extent by refunding operations at lower rates of interest. During the year co-operative economies were effected by the abandonment of 27 miles of Canadian Pacific line between Cyr Junction and Edmunston, and of 11 miles of Canadian National line between Farnham and Iberville. The estimated joint economy from these measures is $42,000 per annum. Construction has been begun of the Senneterre-Rouyn branch of 100 miles authorised in 1936 to serve the mining industry in North-Western Quebec. The programme for 1937 provides for the air-conditioning of 128 passenger cars. With the 70 units in the 1936 programme the railway will have 198 air-conditioned cars by the end of 1937. Fifty coaches being purchased in 1937 will also be air-conditioned. The Pullman Company operates 53 air-conditioned cars over Canadian National lines.

* * * *

A Geared High-Speed Locomotive

WITH some forms of prime mover, *e.g.*, the turbine and the internal-combustion engine, and with the electric motor, reduction gearing has come to be regarded as essential; and gearing to permit of high rotational speeds in the driving agent, and the retention of large driving wheels turning at a comparatively low speed, has been developed to a high pitch of dependability. The reciprocating steam engine was first used on the railway over 100 years ago, and, in the absence of sufficiently accurate gearing, it was found best to apply it directly to the driving axle. The desired effort was obtained from the pistons by making these of large diameter, and a reasonably high piston speed was secured by the use of a long stroke. The reciprocating engine is employed in the same way today, despite the appearance of a practicable alternative offering important advantages. By means of gearing, a smaller, faster running engine could be used. Such an engine would be more easily lubricated and shielded from dirt; more readily equipped with ball and roller bearings; and simpler to balance. Relatively small locomotives have been built on these lines, the outstanding British example being the Sentinel locomotive available with one, two, or more geared engines. Last week we described a German project for a geared locomotive to run at over 100 m.p.h. The scheme comes from a firm of experienced locomotive builders, so that its materialisation is an interesting possibility.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Flying and Burrowing Junctions on the Southern Railway

40, Westmount Road, Eltham, S.E.9.
December 21, 1936

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have been studying the interesting articles on "Flying and Burrowing Junctions on the S.R." in your issues of November 6 and 13, and, finding a little difficulty in clearly visualising the development of the layout between Norwood Junction and Windmill Bridge junction from the description (which is naturally somewhat condensed), I endeavoured to find other sources of information on the subject (hence the delay in writing). Unfortunately, these have shown up certain discrepancies, and I now venture to ask whether you can throw any light on the points of obscurity.

Firstly, was the present flyover at Norwood Fork really constructed in 1847? There was a flyover at this place for the London and Croydon atmospheric railway, which worked between 1845 and 1847, but the Railway Clearing House Junction Diagrams in 1870 show no flyover, the Norwood Fork spur from Selhurst being shown as joining the London Bridge main line at Norwood Junction, 92 chains from Windmill Bridge junction, while the West Croydon line joins the main line at a point 22 chains south of the former junction. The flyover is shown correctly in later editions of the R.C.H. diagrams.

Secondly, the 1870 R.C.H. diagram shows no line from Norwood Fork to Central Croydon, although the line from Victoria is shown connected to the Central Croydon line. It would appear, therefore, that the Norwood Fork spur was first laid without a flyover, and that London Bridge was not connected to Central Croydon until the Norwood Fork flyover was constructed at some date after 1870.

Thirdly, the R.C.H. diagram in 1888 shows, in addition to the flyover, with the Norwood Fork spur and the connection from Norwood Fork to Central Croydon, a direct connection 15 chains in length leaving the West Croydon line approximately at the point of connection of the Selhurst to West Croydon spur and joining the main London Bridge to East Croydon line at a point 22 chains from Windmill Bridge junction; this line apparently crossed the Norwood Fork to Central Croydon line on the level beneath the Victoria lines. This appears to support the view that the flyover was not contemporaneous with the Norwood Fork spur, suggesting that the original connection from West Croydon to the main line was shortened to clear the site of the flyover, and was then abandoned.

Incidentally, this diagram gives the name Gloucester Road junction to the junction of the connection mentioned above with the main line, the junction of the spur from Selhurst being called St. James junction. Was the name Gloucester Road junction originally applied to the Selhurst spur junction, or is the reference to it in the 5th paragraph on page 749 of THE RAILWAY GAZETTE intended merely to indicate that the spur joined the West Croydon line somewhere near the present Gloucester Road junction? The reference is somewhat misleading in view of the later spur from Selhurst to the present Gloucester Road junction, marked in Fig. 6, to which figure the passage in question refers. This paragraph should apparently refer to Fig. 5, in which the lines mentioned are shown dotted, although the connection shown dotted at Windmill Bridge does not agree with the description, and apparently not only the connection at Windmill Bridge but the whole line from the Victoria line to Central Croydon was new in 1865, the connection from London Bridge to Central Croydon not being laid until some years later, as mentioned above.

Finally, I would raise a few minor points. It is not made clear in the article, although it may perhaps be inferred from the diagrams, that the construction of the new local lines involved the abandonment of the existing connection between Norwood Fork and West Croydon, which was replaced by new spurs from Norwood Fork and West Croydon to the new local lines. The date 1908 given for the completion of these works should be 1903; this applies also to the Streatham flyover described in the second instalment of the article. The date 1912 given for the Norwood Junction to East Croydon relief line applies apparently only to the section north of Windmill Bridge; a fifth line from Windmill Bridge to East Croydon was added in 1896.

I fear this letter has become rather long, but I hope it will lead to the complete elucidation of the development of this unique and interesting layout for the benefit of railway historians and others.

Yours faithfully,

ROY GHEURY DE BRAY

London, W.C.1.
December 27, 1936

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In Mr. Barter's interesting articles on flying and burrowing junctions on the Southern Railway he says that "the earliest record of a flyover line on a constituent of the Southern Railway occurs in the year 1847, when an additional down line was provided outside the down main (to Brighton) line from Norwood Junction and was carried over the down and up main lines at Old Croydon junction, to join the existing down line to West Croydon." It appears that the original flyover at this point was an elaborate timber viaduct, with approach gradients of 1 in 50, built in 1845 for the atmospheric line opened in the latter part of that year between Forest Hill and Croydon. From January 19, 1846, all the London & Croydon Railway Company's own trains were worked on the atmospheric system over this single track between Forest Hill and Croydon, and, with the exception of six weeks in June and July, 1846, when atmospheric working was suspended for the overhaul of the apparatus, regular service was maintained until May, 1847. R. Jacomb-Hood's diary records that the atmospheric equipment was taken up and the track converted to a locomotive line by August 19, 1847. It would thus appear that this pioneer flyover dates from 1845, and that the year 1847 given by Mr. Barter is merely that in which it was adapted to steam locomotive working.

PRAXITELES

We have delayed publication of these letters in order to give Mr. S. Barter, the author of the original articles, an opportunity to make the necessarily detailed search in the records of the Southern Railway. He now replies as follows:—

"Our records show that the flyover for the atmospheric line of the London & Croydon Railway was constructed in 1845 and was worked under that system until the abandonment of the atmospheric arrangement on May 4, 1847. The old abutments form part of the present bridge at Norwood Fork and were lengthened in 1898 to form a grid-iron superstructure in lieu of the previous bridge with columns in the centre.

"Widenings in the vicinity of East Croydon were carried out in 1862 and the local lines were opened in *May* of that year. It appears that the local lines were connected with the West Croydon lines at Norwood Fork at the same time, as the lines from Balham southwards to Windmill Bridge junction were not opened until *December*, 1862.

"We cannot trace any record of a connection 15 chains in length from the West Croydon line to the main London Bridge to East Croydon line as described by your correspondent.

"The geographical name of the junction at the West Croydon end of the emergency spur lines is 'St. James junction' and the reference to Gloucester Road junction on

page 749 of my article was, as is assumed, intended to indicate that the junction points fall within the area controlled from the present Gloucester Road Junction box.

"I agree that the reference to the laying in of the emergency spur lines could have referred to figure 5 in which these are shown dotted. I think it is obvious that the 1903 widening and the construction of the East Croydon spur lines entailed the diversion of the original West Croydon lines in order to produce the arrangements depicted in figure 6.

"In regard to the completion of the final arrangements, on further investigation it appears that the date 1908 mentioned in my article should have been 1903 as indicated by Mr. de Bray."

The East Anglian

London, April 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the summer of 1897 the then Great Eastern Railway put into service the Cromer Express, non-stop from Liverpool Street to North Walsham, and booked to pass the Trowse station at Norwich, 114 miles from London, in 2 hr. 14 min.—a remarkable feat for the small 2-2-2 and 2-4-0 locomotives then in use. Ten years later the train became the Norfolk Coast Express, complete with corridor stock throughout and restaurant cars. Its minimum formation was twelve cars weighing 317 tons, and at week-ends the weight rose frequently to fourteen and even more. Yet the non-superheated 50½-ton "Claud Hamilton" 4-4-0 locomotives, which were by now in service, succeeded in maintaining these times over a difficult road even with loads in excess of 400 tons—one of the most outstanding examples of performance in relation to weight that this country has yet seen. And now, in 1937, forty years later, the East Anglian, a train of eight coaches of the latest stock, streamlined 77-ton 4-6-0 locomotive and all, is to run to Norwich, one mile further than Trowse in one minute more than the Trowse allowance of the Cromer Express of 1897! True, the new train is to have a stop at Ipswich, for which a couple of minutes at most should suffice; but even today Norwich is reached in 2 hr. 21 min. on Saturday nights from London by an express which makes *three* intermediate stops, as against the 2 hr. 15 min. of the new streamlined one-stop service. And what of the widening from Romford to Shenfield, which was designed to help in the expedition of the Colchester main line services of the L.N.E.R.; and what also of the successful two-hour test runs made recently between Liverpool Street and Norwich? Surely Norwich is entitled, if streamlined locomotives and stock are thus to be available, to expect at least a 15-min. cut in the time in which the outskirts of her city were passed from Liverpool Street forty years ago.

PERTINAX

PUBLICATIONS RECEIVED

English Railways: Their Beginnings, Development, and Personalities. By Vernon Sommerfield. London: Thomas Nelson & Sons Ltd., 35-36, Paternoster Row, E.C.4. 8¼ in. × 5½ in. × 1½ in. 362 pp. + xx pp. Price 7s. 6d. net.—This volume is designed obviously for popular consumption, giving the man-in-the-street an insight into the romance of railway development, limited as the title indicates, to the country south of the Border. It also shows clearly the regrets of the author at the passing of the pre-grouping railway companies, in every one of which he saw a strongly-marked "personality" that has not survived grouping. He doubts the necessity or even desirability of amalgamation, which he sees as a scheme produced to justify the "expensive existence of the grandiose Ministry of Transport—that post-war legacy of wartime megalomania."

Whether many of his readers will agree with this opinion is uncertain and immaterial, but Mr. Sommerfield will undoubtedly strike a sympathetic note in the breasts of most railway enthusiasts in his keen appreciation of the greater variety and more intimate "character" of the smaller pre-grouping railway unit. He says that this book is much less history than a biography of distinct personalities, and this is, in fact, an apt description. The volume is fascinating and very readable; its contents are far from being a mere re-write of hackneyed stories, and the differences between the various railway systems are clearly defined but unstrained. The author is obviously familiar with the latest important "heavy" literature on railway history (including our own "Universal Directory of Railway Officials and Railway Year Book" which, however, he does not acknowledge), and offers his readers in light style many of the titbits that have come to light as the result of recent research. He thus avoids many of the errors that far too often mar the popular book on railways, and in broad outline conveys an accurate impression which should appeal to the layman without offending the well-informed reader.

It is therefore the more to be regretted that apparent carelessness should have resulted in a number of inaccuracies. In an author's note Mr. Sommerfield says that "the railway historian can certainly not claim that his work is entirely free from error," and points out the undeniable difficulties of conflicting authorities. Despite the fact that his book is clearly not intended to be a serious contribution to railway history, he takes the trouble to remark that "where varied versions exist the author has selected the one that appears to square best with the available evidence, or is based on the most authoritative source." Further suggestion of care is given by the statement that acknowledgments for checking historical details are due to the G.W.R., L.M.S.R., L.N.E.R., and Southern Railway. Some surprise is inevitable, therefore, when we learn from the map on page 360 that the Dover & Deal Joint Railway ran from Crowhurst to Bexhill! Then, on page 33 the author credits the Bristol & Exeter Railway with making the largest and costliest trial of atmosphere traction, whereas the company concerned was, of course, the South Devon Railway. Again, Mr. Sommerfield makes a point of the coincidence of the first iron railway in the neighbourhood of Sheffield being laid (in 1776) in the same year as the Trent & Mersey Canal was sanctioned; actually the canal was sanctioned by Parliament on May 14, 1766. The author's wide knowledge and happy style have resulted in a book which if revised, might rank as one of the best modern popular expositions on railways.

Metro-Vick Calendar.—April brings forth many things, including showers. It also marks the arrival of another of the popular "girl" calendars from Metropolitan-Vickers Electrical Co. Ltd. This year's choice has fallen on an attractive English blonde of fine features who will, no doubt, adorn many walls for the period of its currency—April, 1937 to March, 1938.

Official Guide to the Hotels of Belgium.—The Belgium-Luxembourg Touring Office, 48 Place de Brouckère, Brussels, has published a tabulated guide, in English, to the hotels of Belgium. The hotels are listed alphabetically under towns, also given in alphabetical order. Prices, for room only, room with board, and meals, are given in Belgian francs, and a column headed "Comfort" shows the resources of the hotels in such matters as central heating, garage accommodation, tennis courts, and other particulars of interest to the intending visitor.

Holidays, 1937.—We have received an illustrated programme of summer holiday arrangements on the Continent and in Great Britain from the Workers' Travel Association Limited, Transport House, Smith Square, London, S.W.1. There are over two hundred pages in this guide, and a correspondingly copious selection of tours at reasonable rates. Anyone may book these holidays, becoming automatically an honorary member of the association for one year. The association also invites shareholding members (shares priced £1, and may be paid for by instalments), who enjoy a reduction in the charges for certain holidays.

XUM

THE SCRAP HEAP

Railway Problem No. 1

LOST PROPERTY

Recent statistics show that close upon 99,000 umbrellas were left by absent-minded people in trains and public conveyances in the London district in the course of a year. Assuming that 4 per cent. of those who left umbrellas each left 2, that 2·5 per cent. each left 3, and that 0·5 per cent. were so incredibly forgetful as each to leave 8 umbrellas, how many people left their umbrellas?—*From "A Problem a Day," by R. M. Lucey. Faber & Faber. 5s. net.*

* * *

It is a great pleasure to see the locomotive engineer as he really is, away from his job, and, so to speak, with all his Joy valves in full action, and not specially bothered about the purity of the water, quite happy to be fully primed, and only wishing that he could have a continuous "blow-out."—*Sir Josiah Stamp, G.C.B., G.B.E., at the annual dinner of the Institution of Locomotive Engineers on April 1.*

* * *

Choosing the lesser of two evils was the impossible task of a sea-lion caught between electrified rails on the North-Western Pacific Railroad along the bay at Sausalito, Cal. The animal crawled out the bay for a bit of track walking and couldn't get back. Each time the 1,000 lb. animal tried to cross the rails it was burned, and police bullets ended its suffering.—*From "The Alberian."*

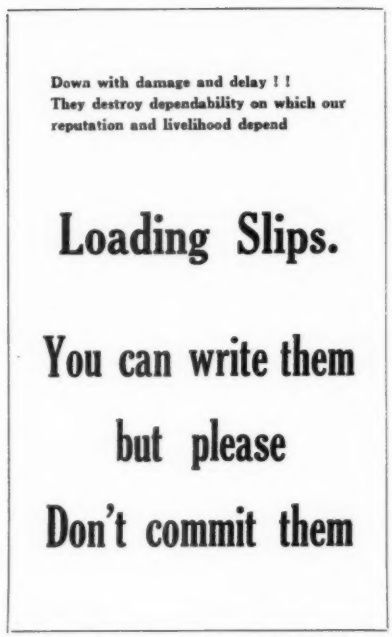
* * *

Food supplies for British railway restaurant car services entail large purchases. For these services alone 3,500,000 lb. of meat, 2,500,000 lb. of potatoes, 260,000 lb. of butter, 80,000 lb. of coffee, and 75,000 lb. of tea are bought annually.

* * *

"STAYING-IN" ON THE UNDERGROUND

A novel treatment for stay-in strikers was devised by London Transport in a recent crisis, when a carload of passengers on the Morden-Edgware Line insisted on sitting tight at Colindale station although requested to change. Opportunity having been given for the faint-hearted to alight, the doors were closed with the malcontents still inside, and the train shunted into a siding, wherein its cargo was allowed a few minutes for quiet and undisturbed reflection. Apparently the experience of being imprisoned behind glass panels like the fish in an aquarium, induced a change of heart in the strikers, for they all got out when the train was run back to the station, and it was announced that it would return whence it had come.


Down with damage and delay ! !
They destroy dependability on which our reputation and livelihood depend
Loading Slips.
You can write them
but please
Don't commit them

No. 7 of a new series—the third—of "claims prevention" posters issued by the Chief Goods Manager, G.W.R., for exhibition to the staff

If all the inhabitants of the world were to stand upright together, they would scarcely cover the island of Bermuda.

One Hundred Years Ago

Extracts from the April, 1837, issue of "The Railway Magazine" (afterwards "Herapath's Railway Journal") and the oldest constituent of THE RAILWAY GAZETTE

Many of the items in this issue have a distinctly modern sound, especially the opening article, which was a translation by the Editor of an account read by M. de Pambour on "The Resistance of Locomotive Engines in Use on Railways."

A reminder that a century ago Spain was also the seat of war is given by a brief notice that "Mr. Wylde's map of the seat of war in the north of Spain, especially of the country between St. Sebastian and the French frontier, will be very useful to all who wish to understand the nature of the movements in that quarter."

Considerable space is given to lengthy abstracts of half-yearly railway reports, and the companies dealt with include the Birmingham, Bristol & Thames Junction Railway; the Bristol & Exeter Railway; the York & North Midland Railway; the London & Southampton Railway; the North Midland Railway; the Great North of England Railway; and the Birmingham & Gloucester Railway.

Railway Mania in Germany.—Very lately in Frankfort, books were opened for shares in a railway, to run from that city to Wisbaden, through Cassel and Biberich, where the crowd of parties wishing to become shareholders was so great that the offices of the bankers were obliged to be guarded by *gendarmerie*.

London and Birmingham Railway.—The Watford tunnel on this railway is now completed. It is one mile and seventy yards in length, twenty-five feet high, and twenty-four in width. The greatest portion of it is through sand and gravel mixed; which render the work difficult and dangerous. The embankment along the Coln valley, Watford, seventy feet in height, is also finished.

Parliamentary Proceedings. February 27.—Mr. Pease implored the House not to pass any bill for railways, unless they were confined to some fixed breadth between the rails. The next day he moved for a Select Committee to that end. Sir H. Verney moved as an amendment, the appointment of a Royal Commission for railways and canals. Both the motion and the amendment were lost. With respect to Mr. Pease's motion the House never committed a more lamentable error than it did in rejecting it; and when it is much too late it will be found out. These undertakings are entered into for private gain, no doubt, but the public convenience ought surely to be consulted too. The having of different gages (*sic*) will be nearly as inconvenient to the traveller, as if his journey was broke (*sic*) down into as many different modes of transit.

DUPLICATE TUNNELS

TO THE EDITOR OF THE RAILWAY MAGAZINE: SIR,—I observe in your last month's Number a letter from Mr Booth, suggesting duplicate tunnels for single lines of railway in reversed directions, so as to *descend only*. I beg to notice to you that whatever merit may be due to Mr. Booth for his invention, he has been preceded some years by Mr. W. D. Holmes, who adopted that mode in his projects for the "Midland Grand Junction Railway," and the "Metropolitan Junction Railways," with this further advantage, that instead of being an inclination only to assist the engine, he gives that inclination in most of the tunnels through London which will be sufficient to ensure the descent of the trains by their own gravity only—thereby dispensing with engines in long tunnels altogether—while he at the same time reduces very much the cost by rendering a less tunnel necessary.—H. ROWLEY.

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Operating Results of Foreign-Owned Railways during 1936

The Instituto de Estudios de Económicos del Transporte has issued a report on the operating results of the privately-owned railways during the calendar year 1936, which shows that passenger and goods traffic was practically the same as in 1935. The gross receipts were $439,675,000 paper, as compared with $437,926,000 paper in 1935, an increase of only $1,749,000, or 0·4 per cent. Goods carried amounted to 39,207,000 tons, as compared with 39,113,000 tons in 1935, an increase of 94,000 tons, or 0·2 per cent. Notwithstanding the increased tonnage carried, however, goods receipts were only $304,525,000 paper in 1936, as compared with $307,657,000 paper in 1935, a decrease of $3,132,000 paper, or 1 per cent., due mainly to the special rebates in tariffs. The number of passengers carried in 1936 was 136,079,000, as compared with 133,331,000 in 1935, an increase of 2,748,000, or 2·1 per cent. Passenger receipts were $86,692,000, as compared with $83,276,000 in the preceding year, an increase of $3,416,000, or 4·1 per cent.

The total expenditure in 1936 amounted to $334,415,000 paper, as compared with $330,299,000 paper in 1935, an increase of $4,116,000 paper, or 1·2 per cent. Net receipts totalled $105,260,000 paper, as compared with $107,627,000 paper in 1935, a decline of $2,367,000 paper, or 2·2 per cent.

In 1935, losses on exchange amounted to $51,782,000 paper, thus reducing the net receipts last year to $55,845,000. In 1936, the exchange factor was more favourable, the losses from this cause amounting to $44,455,000, a decrease of $7,327,000, or 14·1 per cent., as compared with the preceding year, making the net receipts $60,805,000 paper, an increase of $4,960,000, or 8·9 per cent.

Reconstruction of Transandine Railway

The Argentine Government has issued a decree authorising the State Railways with the legal intervention of the National Railway Board, to proceed immediately with the reconstruction of the destroyed portion of the Argentine Transandine Railway, within the estimated cost of $5,614,489 paper, and in conformity with the tentative project of the railway company, approved by the Decree of December 30, 1935.

The Minister of Public Works, in conjunction with the Finance Minister, is now authorised by this Decree to endeavour to come to an agreement with the Argentine Transandine Railway Company in regard to the terms and conditions under which all the assets of the railway shall be transferred to the State *ad referendum* to the Government and Congress. The Decree points out that the railway company has been unable to find the funds wherewith to carry out the necessary reconstruction of those parts of the line between Mendoza and Punta de Vacas washed away by the flood of January 11, 1934, and eventually asked permission to await the findings of the special commission appointed to study the general question of Transandine communications. The report of this commission definitely recommended the acquisition by the Government of the Transandine Railway, and its administration by the Argentine State Railways. The Decree stresses the sentimental reasons for the strengthening of commercial and "spiritual" relations between the two countries, and although recognising that, with the exception of two years, the working of the railway produced only losses, it was hoped that by the enforcement of "adequate measures" results would be more favourable in future. In any case, it was most necessary that direct rail communication should be re-established as soon as possible. The publication of the Decree coincided with the exchange of congratulatory telegrams between the Argentine and Chilean Presidents.

State Railway Estimates for 1937

A Decree issued by the Minister of Public Works approves the estimates submitted by the State Railways administration for construction works and renewals during the current year totalling $50,600,000 paper. Of this amount, $40,000,000 will be provided out of the national budget, and the balance of $10,600,000 defrayed out of the profits on working. This expenditure will be allocated as follows:—

	$ Paper
Pie de Palo-Mendoza line ...	5,350,000
Salta-Socompa line	250,000
Renewals to permanent way ...	11,200,092
River defence works	171,000
Drainage works	80,000
Fences and level crossings ...	500,000
Bridges and culverts	310,000
Buildings and installations ...	8,344,908
Industrial sidings	4,875,000
Railcars	927,000
Completion of lines already provisionally open to traffic... ...	1,867,000
New branches	16,125,000
Surveys	100,000
Acquisition of land, etc.	500,000
Total	$50,600,000

The principal new branches provided for are:—

	$ Paper
Joaquin V. Gonzalez to Pichanal...	6,825,000
Tostado to General Pinedo ...	4,000,000
Parana to Maria Grande	300,000
Milagro to Quines	1,300,000
La Paz to Feliciano and San Jaime	3,200,000

CHILE

Proposed Faster Speeds between Santiago and Valparaiso

It is announced that the State Railways administration proposes to strengthen the permanent way between Santiago and Valparaiso, with a view to permitting expresses to cover the distance between these two points, 116 miles, in 2¼ hr., instead of a little over 3 hr. as at present.

SOUTH AFRICA

Railway Budget

Mr. O. Pirow, Minister of Railways and Harbours, introducing the Railway Budget, made a statement on the following lines. The anticipated surplus at the end of the financial year will amount to £1,748,025 which, with the surplus of £125,155 brought forward from the previous financial year, makes available an amount of £1,873,180. Of this amount £1,000,000 will be appropriated for the Renewals Fund, £850,000 to Betterment Fund, £20,000 to form the nucleus of a Workmen's Compensation Insurance Fund, leaving a balance of £3,180 to be carried forward.

During the calendar year 1936, the railways earned the record revenue of £31,762,008 at the record low cost of 7s. 6·3d. per train-mile for all trains, and transported a record tonnage of 32,231,489. The gross working expenses for the same period represented the record low percentage of 64·09 on earnings. The estimated revenue for the next financial year is £36,850,415 and the expenditure is estimated at £36,843,797.

Benefits to the Public

Direct benefits to the public will include £280,000 reduction in the rate on coal for local consumption; £103,000 abolition of surcharge on rates 1, 2 and 3; £6,300 reduction in C.O.D. commission; £14,000 reduction in rates on milk and cream; £42,000 reduction in short distance suburban season ticket rates; and £100,000 reduction in road motor rates and fares.

The reduction in the tariff on coal is made on the assumption that the consumer will receive the full benefit thereof. If this is not the case, the concession will be withdrawn.

Branch Line Improvements

As a result of the recent visit of the Chief Railway Commissioner to Europe, branch line services are likely to be augmented by the introduction of railcars operated on cheap fuel oil. An amount of £12,000 has been provided in the capital and betterment estimates for the purchase of railcars.

Benefits to the Staff

Benefits to the staff will include £80,000 for sick pay on the basis of two-thirds of the normal wage to all monthly and daily paid staff, including European labourers and salaried staff

with less than two years' service. The recognition of Union Day as a paid public holiday for all staff will entail a further £30,000. Service improvements, where such may appear necessary, will continue to receive consideration. The total staff has now reached the record figure of 107,653 with a wage bill of £16,137,266.

UNITED STATES

Pensions Controversy Settled

The railway managements and the executives of the 21 "standard" railway trades unions have reached an amicable settlement of the staff pensions controversy which has for years been the subject of legislative and court action. Finally, in desperation, the unions resorted to collective bargaining, and the whole issue has been settled by only a little more than two months of negotiating; this may, perhaps, make the unions a little less desirous of preferring politics to direct negotiation hereafter.

The agreement differs from the present Retirement Act (now being contested in the courts) chiefly in that it provides for the payment of present pensioners, for whom the contested act made no provision. Employees, under the agreement (which must be implemented by an Act of Congress before it becomes finally effective) may retire at the age of 65, although they may continue to work beyond that age if they so desire, and the employing railway agrees. Superannuation at an age earlier than 65 is permitted in the event of disability, or without disability at a reduced scale of payment.

Scale of Pension Payments

In computing payments to be made to pensioners, wages greater than £60 monthly are not counted, nor are years of service in excess of 30. With these two limitations, monthly payments are computed as follow: 2 per cent. of average monthly earnings up to £10; 1½ per cent. from £10 to £30; and 1 per cent. from £30 to £60.

The summation of the above is then multiplied by the years of service, and the result is the monthly payment to which the pensioner is entitled. For example, the above percentages of an average wage of £60 would equal £4. This last, multiplied by 30 years of service, would give £24, which is the maximum monthly payment available under the scheme. The pensions are to be paid from the Federal Treasury, the necessary funds to be raised by a tax of 5 per cent. on all wages, to be paid half by the railways and half by the employees.

Wage Increase Demand

The "big five" railway unions (train crews) have made a formal demand for an increase of 20 per cent. in their wage rates, and all the other unions are combined in a demand for a rise of 10d. an hour for all grades. These demands have yet to be dealt with. The railways can ill afford to make any concessions whatsoever in higher wage rates, but the clamour for some upward adjustments will be very great in view of the material increases that have been granted by the road motor, steel and other heavy industries as a result of the "sit down" strikes.

The industries which have made these concessions, however, are enjoying pre-depression prosperity, which the railroads are not. Furthermore, the steel industry promptly raised its prices more than sufficiently to recover its wage increases. This the railways are unable to do, and so their dilemma is serious. Perhaps it is not too much to hope that the unions, grateful for the generous settlement of the pensions controversy, may not press their demands to the point of ruin.

FRANCE

Midi Railway Traffic in 1936

Net receipts of the Midi in 1936, according to the report presented to shareholders at the annual meeting on March 18, amounted to fr. 685,930,216. This sum shows an increase of fr. 4,167,167 in comparison with 1935. Operating expenses were fr. 731,739,557 showing an increase of fr. 21,374,772 for the year. Including capital and other charges, the total expenditure was fr. 1,034,654,983. The deficit is fr. 348,724,767, comparing with fr. 340,028,853 in 1935. This deficit plus special intercalated charges of fr. 27,484,476, represents the amount to be claimed by the company from the Common Fund for 1936.

M. Paul Tirard, President of the Midi Company, called the attention of the shareholders to the fact that the traffic receipts were virtually the same as in 1935, despite exceptional adverse circumstances. Spanish traffic, which normally brings in a revenue of fr. 70 to 75 million, had been almost completely stopped since August. For January alone the loss was about 10 millions, as that is the month when the orange traffic is at its peak. The Midi system had also suffered a loss of 29 millions by the compulsory reduction of freight rates for wines. But a new and equitable rate schedule had been drawn up and this would prevent similar sacrifices by the company in the future.

Economies Effected by Electrification

The President laid stress on the saving made by electrification, and estimated, on the basis of the 1936 traffic, that the electrified lines of the Midi alone had saved 470,000 tons of coal. M. Tirard also referred to the efforts made to encourage travel by speeding up trains and providing rail-car services, as well as expanding goods traffic by simplifying schedules and rates.

Turning to the financial future of French railways in general, the President said that the total railway deficit for 1936 was fr. 4,300 million. In 1937, the railways would feel the full effect of the suppression of the decree laws, which had economised about fr. 1,000 million, and this burden would again be borne by the railways. Application of the 40-hr. working week would necessitate, according to ministerial estimates, employment of 60,000 additional railway workers, involving additional expenditure amounting to fr. 1,200 to 1,500 million, even admitting a flexible interpretation of the law. The general rise in prices of coal and other materials required by the railways must also be taken into account.

Offsets to Enforced Future Increase in Expenditure

In view of this serious financial problem, the public powers as well as the railways were striving to find some reasonable solution. In the first place, some increase in receipts might be anticipated. M. Tirard pointed out that the increase in the first eight weeks this year was 10 per cent., whereas the traffic had increased only 7·7 per cent.; this apparent anomaly being explained by the suppression of the goods transport tax on February 1. A corresponding increase in the goods tariffs had been made, but even if the 10 per cent. increase in receipts were maintained throughout the year, it would bring in only fr. 1,000 million, and evidently would be insufficient to cover the great increase in expenditure.

Among the measures, which might aid in reducing the railway deficit, said the President, was the co-ordination of all means of transport. The railways were also revising and simplifying tariffs as another measure to aid the growth of receipts. Finally, an improvement in the general financial situation of the country might bring easier money rates and thus make it possible to reduce the burden of the railway debt.

EGYPT

Instruction Car for Enginemen

The Mechanical Department of the State Railways has recently built an instruction car equipped with diagrams and models to be used for the instruction of drivers and firemen in their respective duties. This car will meet a long felt want and should go far towards greater driving efficiency as a result of proper handling of the regulator and cut off, and correct distribution of fuel over the grate.

Through Combined Tickets between Egypt and the Sudan

In order to encourage through travelling between Egypt and the Sudan the Egyptian Railway Board has agreed to the issue of through combined return tickets between the E.S.R. and the Sudan Railways. These tickets will be available for first and second class passengers only. The percentage of reduction on E.S.R. fares will be 15 per cent. of the usual fares during the

tourist season—from January 26 to March 31—and 25 per cent. during the rest of the year. The reduction on the Sudan Railways will vary from 4 per cent. to 40 per cent. The tickets will be valid for 42 days.

State Railway Staff and National Defence

The Egyptian officials and employees of the State Railways have, in common with other Government officials, shown their patriotism by contributing a month's pay towards the expense of providing an efficient National Defence Force for Egypt. Now that the Anglo-Egyptian Treaty has been ratified, Egypt is faced with bringing her fighting forces up to date, an expensive item in an age of mechanised transport, aeroplanes and tanks, and the splendid example set first by the Prime Minister and his Cabinet, which has been so faithfully followed by all Government officials and employees, should act as an inspiration to the whole nation to make a like sacrifice.

Budget Provision for New Works

A credit of £E.50,000 is being asked for in the 1937-38 capital budget proposals for the completion of the Sidi—Ghazi—Mutubis line. Work on it has been postponed for a considerable number of years, in spite of the bridge over the Nile at Idfina having been constructed. The line when completed will serve an area at present sparsely populated, but one which is expected to develop considerably as a result of irrigation operations recently begun. It will also provide an alternative route for through goods trains from lines north of the Delta to Gabbary.

A sum of £E.16,000 is also included in the budget to provide for the installation of telephone traffic control in Lower Egypt.

URUGUAY

Proposed Government Purchase of the Line to Mercedes

According to advices from Montevideo, the President of Uruguay, Dr. Gabriel Terra, in response to requests made by residents in the Departments of Soriano, Rio Negro and Paysandú, has decided to give his support to a scheme for the construction of a road bridge over the Rio Negro, in the vicinity of the city of Mercedes. It is stated that this work, estimated to cost about 2,000,000 pesos (approximately equivalent at current exchange rates to £224,444) would be co-ordinated with the acquisition of the railway line, 211 miles long, serving Mercedes, Puerto del Sauce and Colonia (known as the Western Extension of the Central Uruguay Railway), which it is proposed to join up with the branch of the Midland Railway to the north. To effect this junction, it would be necessary only to construct about 15 km. of line. President Terra is reported to be of the opinion that these two railways, divided as they are, do not represent their own true value, nor do they yield the benefits to which the country is entitled, particularly in view of the satisfactory results obtained by the new form of passenger transport by railcar.

Under the existing arrangement, the lease for the working by the Central Uruguay Railway Company of the line to Mercedes expires in 1962, when this branch, with its rolling stock and equipment becomes the property of the Government, and it is pointed out that it is now possible to arrange for its purchase at a price which would be very advantageous to the State, and the same applies to the Midland Railway, in view of the low quotations for its shares. The scheme has been studied by the Ministry of Public Works, and will shortly be sent to the Legislature.

SPAIN

Difficulties in Railway Operation

While rail transport between Valencia and Madrid is still interrupted at Alcazar de San Juan, a fairly regular service is being maintained between Valencia and Barcelona. Great difficulty is being experienced in maintaining supplies of fuel, and stocks are at a low ebb. On this account, and as troop trains are given preference, all sleeping and restaurant cars have been taken off, and the public service is now limited to one train a day. The brown coal from the Utrillas mines is being used where possible, but it is not suitable for use in locomotive boilers unless mixed with bituminous coal. The 35-ton steel hopper wagons which were used in normal times for the transport of iron ore on the Great Southern of Spain Railway, are now, it is reported, being dismantled under the direction of a Russian engineer, and the plates are being used for the construction of armoured trains. This railway, it will be remembered, was seized by the "Workers' Council" of the local labour syndicate on September 5 last, and the company has so far been unable to regain control of its property.

ITALY

New Railway Works in Progress

The following works are at present in progress on the State Railways: (1) the construction of a new station at Cuneo; (2) the stone ballasting of the Savona-San Giuseppe Cairo line; (3) the construction of a viaduct over the Tassonaro river on the Lucca—Aulla railway, and the building of the long Lupacino tunnel; (4) the construction of the Fidenza—Salsomaggiore line, which is to be opened on October 28 next; (5) on the new electric railway between Bologna and Florence a subsidiary 130-kV. transmission line is being installed between Vado and Bologna; (6) the enlargement of two stations at Treviso in connection with the completion of the Ostiglia—Treviso through route; and (7) the completion of the 40-km. Portoguaro—Palmanova section of the Portoguaro—Sassello line with the exception of the bridge over the Tagliamento and the connection with the Trieste—Venice line at Portoguaro. It is understood that the Portoguaro—Sassello line is likely to form the initial section of a new international communication between Italy and Jugoslavia.

MANCHUKUO

Tumen-Chiamussu Extension

Chiamussu on the Singari River, the terminus of this extension [which as recorded in our issue of March 5 was opened on January 15.—ED. *R.G.*] has a population of about 43,000, of which all but 2,000 (Japanese) are Manchus. The new line greatly reduces the distance to the seaboard and will carry coal from Holi Colliery, situated some 56 km. beyond the Singari, but tapped by a mineral line which terminates on the river at Lienkiangkou. Passenger trains do not at present run through from Tumen to Chiamussu, a halt for the night being made in each direction at Poli, 136 km. short of the railhead and the former terminus of the line.

CHINA

Further Lung-Hai Extension Opened

The extension of the Lung-Hai Railway westwards from Siam was opened as far as Paochi on March 1.

Miscellaneous Items of New Rolling Stock

The locomotives recently reported in these columns as having been received by the Kaiochow-Tsinan Railway are Krupp-built 2-10-2 type engines, and those for the Lung-Hai Railway are Belgian-built and of the E.50 class.

In place of the 4-8-4 Vulcan Foundry locomotives that were temporarily working on the Nanking-Shanghai Railway, prior to their going to the Canton-Hankow system—where they all now are—the administration of the former railway is considering the purchase of some 4-6-4 type engines.

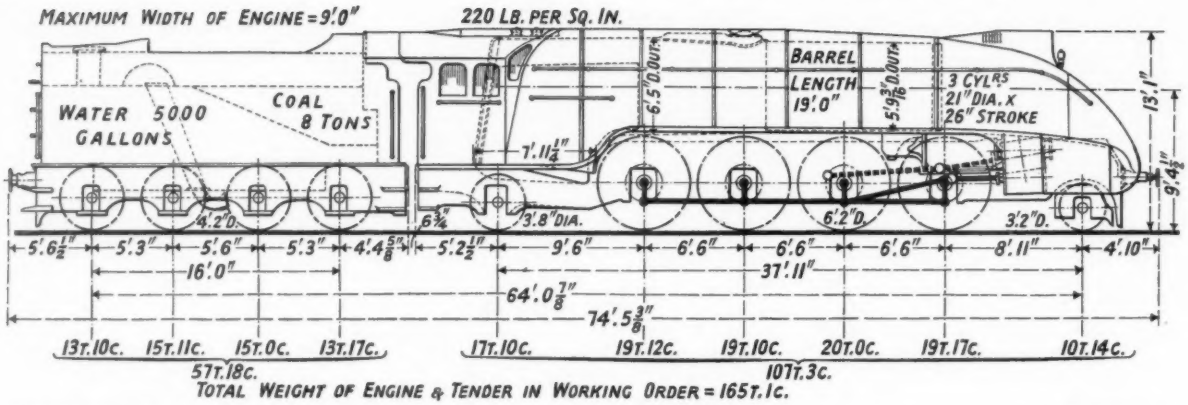
The Tientsin-Pukow Railway is arranging to allot a sum of $5,000,000 annually for the next three years for the purchase of new rolling stock.

The Kiaochow-Tsinan Railway is ordering seven locomotives and 300 wagons to meet increased traffic requirements.

Shanghai-Canton Through Service

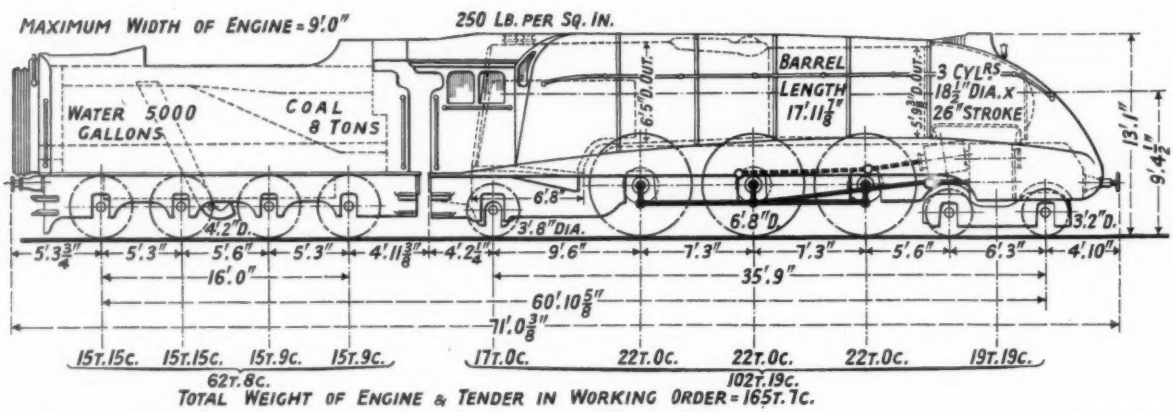
It is anticipated that the new trunk route from Shanghai to Canton, over the metals of the Shanghai-Hangchow-Ningpo, Chekiang-Kiangsi and its extensions, and the Canton-Hankow Railways, will be open for traffic by the end of this year, when it is proposed that a through express service may be run between the two first-named cities in about 40 hr.

British Locomotive Types—VIII



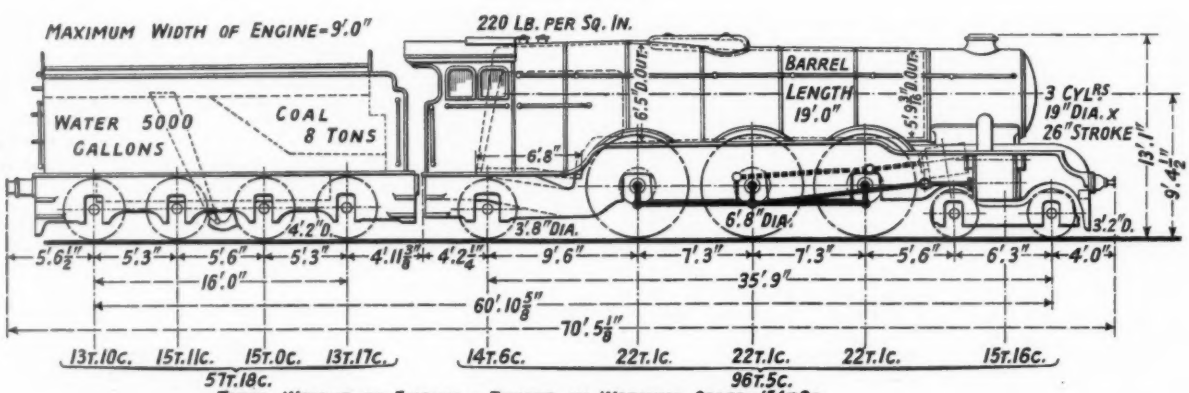
HEATING SURFACE, TUBES—		SUPERHEATER	776·5 SQ. FT.
LARGE AND SMALL	2,477·0 SQ. FT.	COMBINED HEATING SURFACES	3,490·5 ,,
FIREBOX	237·0 ,,	GRATE AREA	50·0 ,,
TOTAL (EVAPORATIVE)	2,714·0 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	43,462 LB.

P.2 Class



HEATING SURFACE, TUBES—		SUPERHEATER	748·9 SQ. FT.
LARGE AND SMALL	2,345·1 SQ. FT.	COMBINED HEATING SURFACES	3,325·2 ,,
FIREBOX	231·2 ,,	GRATE AREA	41·25 ,,
TOTAL (EVAPORATIVE)	2,576·3 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	35,455 LB.

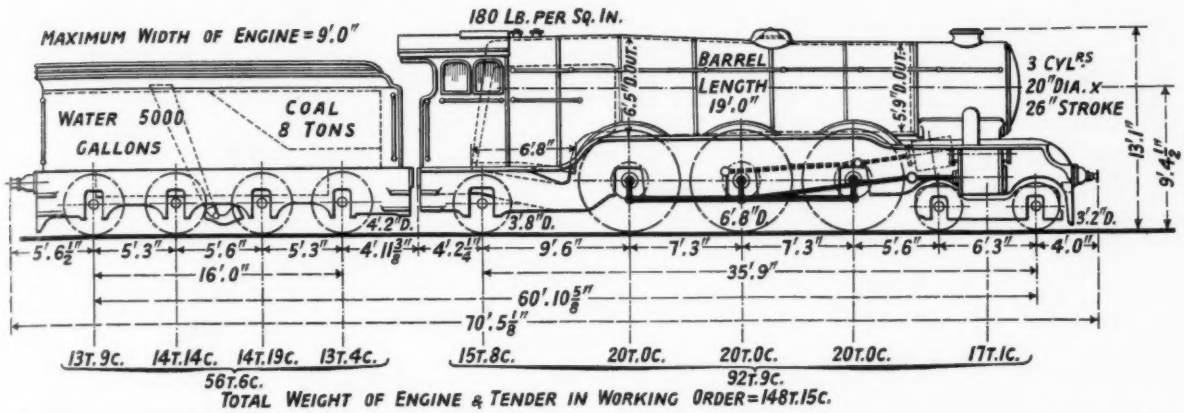
A.4 Class



HEATING SURFACE, TUBES—		SUPERHEATER	635·5 SQ. FT.
LARGE AND SMALL	2,521·6 SQ. FT.	COMBINED HEATING SURFACES	3,372·1 ,,
FIREBOX	215·0 ,,	GRATE AREA	41·25 ,,
TOTAL (EVAPORATIVE)	2,736·6 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	32,909 LB.

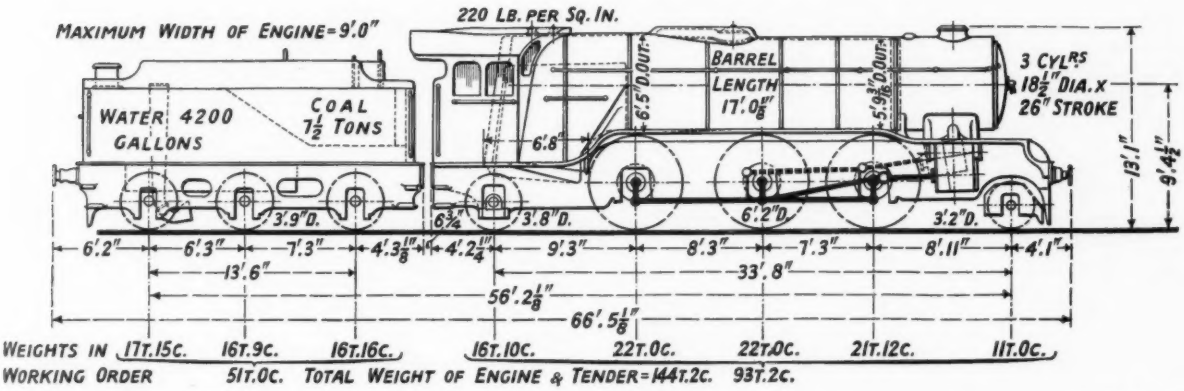
A.3 Class

London & North Eastern Railway



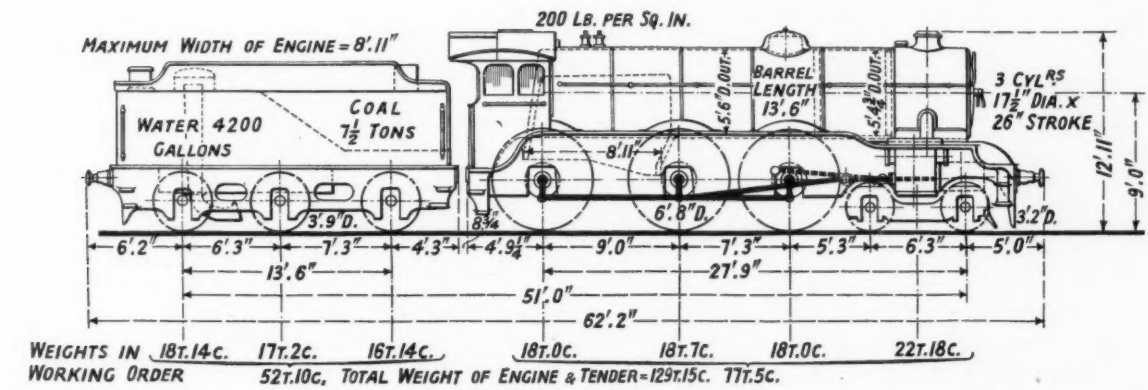
HEATING SURFACE, TUBES—		SUPERHEATER	525·0 SQ. FT.
LARGE AND SMALL	2,715·0 SQ. FT.	COMBINED HEATING SURFACES	3,455·0 ,,
FIREBOX	215·0 ,,	GRATE AREA	41·25 ,,
TOTAL (EVAPORATIVE)	2,930·0 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	29,835 LB.

A.1 Class


MAXIMUM WIDTH OF ENGINE = 9'.0"
220 LB. PER SQ. IN.
WATER 4200 GALLONS
COAL 7½ TONS
BARREL LENGTH 17'.0⅜"
3 CYLRS 18½" DIA. X 26" STROKE
13'.1"
9'.4½"
6'.2" 6'.3" 7'.3" 4'.3⅛" 4'.2¼" 9'.3" 8'.3" 7'.3" 8'.11" 4'.1"
13'.6"
33'.8"
56'.2⅛"
66'.5⅛"
WEIGHTS IN WORKING ORDER 17T.15C. 16T.9C. 16T.16C. 16T.10C. 22T.0C. 22T.0C. 21T.12C. 11T.0C.
51T.0C. TOTAL WEIGHT OF ENGINE & TENDER = 144T.2C. 93T.2C.

HEATING SURFACE, TUBES—		SUPERHEATER	679·67 SQ. FT.
LARGE AND SMALL	2,216·07 SQ. FT.	COMBINED HEATING SURFACES	3,110·74 ,,
FIREBOX	215·0 ,,	GRATE AREA	41·25 ,,
TOTAL (EVAPORATIVE)	2,431·07 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	33,730 LB.

V.2 Class


MAXIMUM WIDTH OF ENGINE = 8'.11"
200 LB. PER SQ. IN.
WATER 4200 GALLONS
COAL 7½ TONS
BARREL LENGTH 13'.6"
3 CYLRS 17½" DIA. X 26" STROKE
12'.11"
9'.0"
6'.2" 6'.3" 7'.3" 4'.3" 4'.9¼" 9'.0" 7'.3" 5'.3" 6'.3" 5'.0"
13'.6"
27'.9"
51'.0"
62'.2"
WEIGHTS IN WORKING ORDER 18T.14C. 17T.2C. 16T.14C. 18T.0C. 18T.7C. 18T.0C. 22T.18C.
52T.10C. TOTAL WEIGHT OF ENGINE & TENDER = 129T.15C. 77T.5C.

HEATING SURFACE, TUBES—		SUPERHEATER	344·0 SQ. FT.
LARGE AND SMALL	1,508·0 SQ. FT.	COMBINED HEATING SURFACES	2,020·0 ,,
FIREBOX	168·0 ,,	GRATE AREA	27·5 ,,
TOTAL (EVAPORATIVE)	1,676·0 ,,	TRACTIVE EFFORT (AT 85 PER CENT. B.P.)	25,380 LB.

B.17 Class

RICHARDS NEW GOLIATH INTERNAL KEYSEATING MACHINE

THE machine we illustrate operates on the draw-cut principle and is capable of cutting straight or taper internal keyways in a wide variety of components. The column or frame and table are in one piece, and the latter can be used for supporting overhanging work. The column is totally enclosed and mounted on a large baseplate, which is levelled on the floor and held down by rag bolts. The machine is very simple in operation, there being only three operating levers, all within easy reach of the operator, and is of compact and rigid construction. It will cut internal keyways or slots from $\frac{5}{32}$ in. to 2 in. wide × 24 in. long in holes varying from $\frac{1}{2}$ in. to $8\frac{1}{4}$ in. diameter; suitable tool posts, bars and cutters are required for the different sizes.

The machine is motor-driven by a 5-h.p. constant speed motor through vee ropes. The motor speed is 900 r.p.m., giving a cutting speed of 16 ft. per min.; a quick return speed of 32 ft. per min. is obtained through the action of the crosshead contacting with the tappets at each end of the stroke, which causes the friction clutch to move over from the cutting to the return stroke. Five rates of feed are provided, ranging from 0·002 in. to 0·01 in., and these are controlled by the feed lever seen in the illustration. A point of special interest is that the tool is automatically relieved and does not drag on the work during the return stroke. This machine is manufactured by George Richards & Co. Ltd., of Broadheath, Manchester.

New Richards internal keyseating machine

A Durham Railway Centenary

ON March 31, 1837, the Byers Green branch of the Clarence Railway was opened, and as this branch is of unusual interest in railway history, the *L.N.E.R. Magazine* has given it a column in the current issue. The notes, which we reproduce, appeared in that magazine over the initials "C. R. F."

The Clarence Railway, like all the early lines, was formed for the purpose of carrying coal from the pits—in this case the Durham pits—to a port for shipment. A main line from Haverton Hill to a junction with the Stockton & Darlington line at Simpasture, with a branch northwards to Old Quarrington and a further branch from Ferryhill to Byers Green, were authorised by Acts passed in 1828 and 1829, and opened for traffic in sections from 1833 onwards.

The Clarence Railway Company's powers to build the Byers Green branch had nearly lapsed and the funds were exhausted when, in the summer of 1836, the company entered into an engagement with the promoters of the New South Durham Railway to build the branch. However, so keenly interested in the venture were the Clarence shareholders that some of them determined to build the branch themselves.

The inevitable opposition from the landowners was encountered and was headed by no less august a body than the Dean and Chapter of Durham, who owned most of the land required. The Dean and Chapter made an ingenious claim for £11,963 compensation, based on the rents which a private company would have had to pay for the rights of passing over their land; their lessees also made a heavy claim. The claims were submitted to a jury, who awarded £180 to the lessees and nothing to the dean and chapter for the loss of way-leave rents. The 14½ acres of land which the company eventually purchased cost them £2,412 10s.

The line was built during the wet and cold winter of 1836-37, and although some heavy earthworks were involved, the works were sufficiently advanced by March to admit of a temporary line being laid, and on March 31, 1837, some wagons of coal were hauled along it by horses, just in time to enable the company to obtain the certificate of having opened the line before the Parliamentary time limit expired. It was nearly four years later when the branch was completed on its present level.

The Clarence Railway was leased to the Stockton & Hartlepool Railway in 1844 for 21 years, and purchased by the Leeds & Thirsk Railway Company in 1846 for £450,000, the purchasers also buying the Stockton & Hartlepool Railway. In 1851 the Leeds & Thirsk Railway Company became the Leeds Northern Railway Company, and in 1854, together with the York, Newcastle & Berwick and the York and North Midland Companies, it became part of the North Eastern Railway, now, of course, included in the L.N.E.R.

FISH LANDINGS AT GRIMSBY IN HOLY WEEK.—The fish landings at Grimsby during Holy Week, 1937, made history, the tonnage landed being a record for the port. During the week 266 vessels discharged, as compared with 260 in 1936; 1,340 wagons of fish were loaded up by the L.N.E.R. as compared with 1,297 in 1936; and the estimated tonnage landed was 6,252 tons as compared with 4,426 in the corresponding week of 1936. On the Wednesday the tonnage landed was 2,013, which eclipsed any previous day's landings recorded at Grimsby.

RAILWAYS AND ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

Haulage on Tyneside

ONE of the best-known names in the goods transport industry on Tyneside is that of Currie & Co. (Newcastle) Ltd. This old-established firm has always worked in close co-operation with the L.N.E.R. and its predecessors, and at present the L.N.E.R. holds £63,750 in shares of the company. The road fleet comprises about 100 vehicles, including steam wagons and petrol lorries, and among the latter those of A.E.C. make are prominent—within the last year or so 10 Matador models have been drafted into the fleet. Abnormal loads are a speciality, but the company also undertakes a large amount of general haulage, maintains a furniture repository, a bonded stores, a large eight-storey warehouse, stables for a team of horses, and a wharf and transit shed; the last-mentioned is never closed. At Mansion House wharf, one of the five premises owned by Currie & Co. in Newcastle-on-Tyne, goods may be loaded direct from coastal steamers on to the company's lorries. The transport of 8,000 tons of steel girders for the Tyne bridge was one of the large and unusual contracts carried out by the company, but the everyday work given by Tyneside includes ships' boilers, rudder frames, auxiliary machinery, and propellers. Storms at sea with the resultant damage to shipping frequently cause the firm to be asked to meet urgent calls for new propellers from any of the country's principal ports. The nine-tonner shown in our illustration is loaded on to one of the firm's A.E.C. Mammoth Major diesel-engined lorries. A recent expansion of this company's business is the acquisition of the Newcastle branch of Wordie & Co. Ltd. the famous Glasgow associate of the L.M.S.R. That undertaking was originally established in 1700 and has its principal branches at Aberdeen, Dundee, Edinburgh, and Leith.

Training Bus Drivers

ONE of the features of the Chiswick bus works of the London Passenger Transport Board that is to be replanned completely is the driving test-ground with its world-famous skid patch. More than 5,000 drivers have been trained on its treacherous greasy surface since it was built in 1925 by the old London General Omnibus Co. Ltd., but modern driving conditions are considered to require more varied training, and, in place of the skid patch, cross-roads are to be built, complete with traffic lights, bus stops, pedestrian crossings, and pedestrian islands. The roads will be of concrete, and surfaced with asphalte to give them glassy smoothness, which, in turn, will be covered with soft soap to produce the worst possible driving conditions. A driver under training will approach the cross-roads at 30 m.p.h., and an instructor, seated in a glazed chamber on a tower, will control the crossing. At the will of the controller, the driver may be confronted with a number of emergencies. One feature is to be a post intended to represent a passenger hailing a vehicle. A metal arm will be raised without warning and the driver will be trained to see the signal immediately and to bring his bus to the pavement without skidding. Just as he gets under way again, the traffic lights may be turned against him, and this will provide on such an uncertain surface another test of skill. In the control tower the driver's technical progress and his reaction to unforeseen difficulties will be plotted on a chart. To prevent accident, the pedestrian islands will be wooden and movable, and a concrete kerb will stop buses from running off the road.

Road-Rail Milk Containers

ON pages 712-3 of this section we describe and illustrate a fleet of new road-rail milk tanks that has recently been placed in service on the L.M.S.R. The first examples of this type of vehicle were introduced on the Southern Railway in 1931 and were described in THE RAILWAY GAZETTE of October 9, 1931. A review of subsequent developments appeared in our issue of June 2, 1933. Such has been the growth in the popularity of these vehicles that road-rail milk tank wagons are now to be found in service on all four of the group railways. The particular vehicles described in this issue are interesting as being the first six-wheelers to be fitted with pneumatic tyres. So far these tank wagons have been confined to the transit of milk, but R. A. Dyson & Co. Ltd. is at present engaged in manufacturing a batch to be used for the conveyance of all types of liquids.

Nine-ton propeller loaded at South Shields on one of the A.E.C. diesel-engined Mammoth Major lorries of Currie & Co. (Newcastle) Ltd.

Co-ordination of Transport in France

A summary of the observations made in the report of the Finance Commission of the Chamber of Deputies on the 1937 *Budget proposals*

IN the report of M. Charles Pomaret for the Finance Commission of the Chamber of Deputies on the railways chapter in the 1937 Budget proposals, a section of 22 pages is devoted to the question of the co-ordination of rail and road transport in France. Under the subtitle "The present situation and its consequences," M. Pomaret states that more than a year has elapsed since the first county transport plan was submitted for the signature of the Minister of Public Works, but no effective steps for co-ordination have yet been put into effect, and the competent authorities are still studying and giving further retouches to the modifications which it is proposed to make in the existing regulations. A few small sections of railway line, representing some 5 to 10 per cent. of the programme originally foreshadowed, may be closed when action is taken on the Minister's circular of August 12, 1936. The adverse balance of the railways common fund is growing, and the situation of the companies is becoming worse and worse.

On the basis of the estimates in the 1936 budget proposals, the additional revenue that the railways would secure from the adoption of an adequate system of co-ordination would be between fr. 600 and fr. 800 million annually. A study of the railway receipts in the period 1930-34 shows that for three years past revenue has been lower by nearly one milliard annually than it would have been if the rates of 1930 had been in force. Every year of delay, therefore, results in an increase of the deficit (which has to be borne by the common fund, and consequently by the general body of taxpayers) by about 1½ milliard. This is all the more serious in that the reductions in charges which the administration has been led to approve do not benefit the national economy, but only certain large transport concerns who have every interest in maintaining the *status quo*.

The question arises whether it is not an overdue necessity for the State to assert its authority to hasten the adoption of reforms. As long as there is no pressure exerted by the public authorities on transport undertakings as well as on users, to make them realise that co-ordination is in the general interest, and as long as certain interested parties continue by systematic propaganda to mislead the public, only a few measures of partial co-ordination can be introduced.

Passenger Traffic

The total or partial closing of railway lines at present catering for passenger traffic would be strongly disapproved by the great majority, in the opinion of M. Pomaret. He therefore advocates that during the early stages, at least, a minimum number of slow trains should be maintained on most lines. On routes served by both rail and road, a scheme should be drawn up providing for:—

1.—The correlation of timetables, so that a minimum service of trains and road vehicles could be spaced out to give the greatest possible convenience to travellers.

2.—One common scale for tickets (equivalent to third class rail charges), with return tickets available for use on either rail or coach.

3.—The obligation for road transport services to allow the same reductions as do the railways in the case of soldiers, disabled ex-service men, members of large families, and so forth; and

4.—A prohibition of any increase of the service, whether rail or road.

Where it is found possible to abolish a railway service, the road transport undertaking that replaces it should not benefit in any way, directly or indirectly, from the common fund; and it should be required to subscribe to general conditions respecting the frequency of the services, the scales of charges (with the various rebates for workmen, school children, and so forth) and guarantees for the continuation of the service.

Goods Traffic

One of the main features of the co-ordination scheme is the taking of a rolling stock census, both rail and road. Whatever system may be adopted eventually, it will be necessary to know beforehand the number of vehicles owned by every enterprise, their principal characteristics, the class of goods carried, and the routes normally used. As the system proposed in Section III of the Decree of July 13, 1935, is extremely complicated and would present numerous difficulties, some simpler plan should be found. The following plan would appear to be practicable. No co-ordination should be attempted for short distance transport within a radius of, say, 25 or 50 km. of the point to which a vehicle is attached. For long distance haulage, road transport undertakings should be compelled to form a group and to draw up agreements respecting limitation of the number of vehicles and limitation of distance; and the scales of charges should be fixed under Government control between this group and the railway companies, so as to organise progressively a sharing of the business which would enable certain lines—or at any rate certain stations—to be closed to goods traffic. Special provision should be made for vehicles hired for short periods; for those on contract service; for those which, after having been used for private transport, offer public facilities on the homeward journey; and so forth.

M. Pomaret proceeds to urge greater facilities for a revision of transport rates which are at present unprofitable, and the stricter and less dilatory application of penalties in the event of failure to abide by co-ordination regulations. After expressing the view that the adoption of any reforms proposed, along lines similar to those outlined above, could at best be only a palliative, M. Pomaret advocates nationalisation. He says that sooner or later it will be necessary to institute a transport monopoly either as a State-owned service or as a concessioned undertaking subject to a large measure of State control. In the concluding section of the report a passing allusion is made to inland waterways and air services, though these aspects of the transport co-ordination problem are virtually ignored. Finally, the author doubts whether the present personnel of the Public Works Department is qualified to handle the new services, and he proposes the constitution of a new department under a General Director of Transport.

MORE PICKFORDS ACQUISITIONS.—During the last three months Pickfords Limited has acquired the following freight businesses: Crouchers Limited of Newport, Isle of Wight—21 motors, 2 trailers, and 11 motor vessels; Shepard Bros. Limited, Newport, Isle of Wight—14 motors, 1 trailer, and 7 motor boats; Cook Transport Co. (Leicester) Ltd.—4 motors; and Coupe Bros.—5 motors, and 17 trailers.

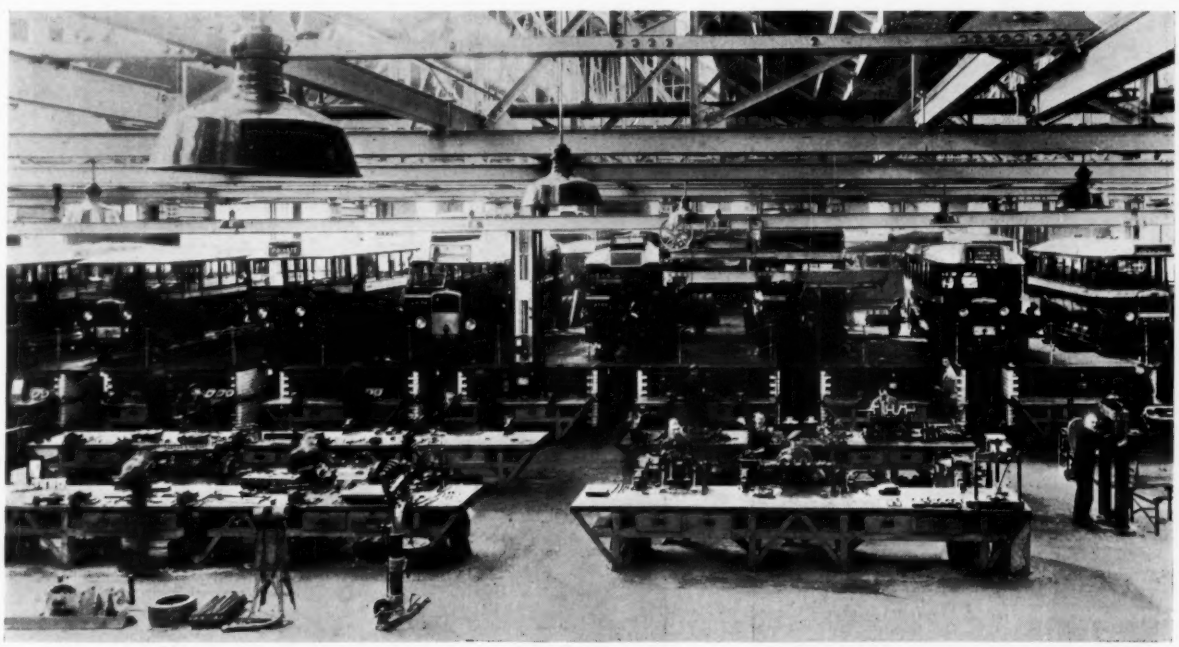
A Modern Bus Overhaul Works

An account of the development of the United Automobile Services Limited, and of the modern central shops at Darlington which are responsible for the maintenance of a fleet of some 850 vehicles working about 4,400 route miles

FACILITIES provided by the large provincial bus undertakings for the overhaul of their fleets vary considerably as regards both equipment and methods, and it is impossible therefore to describe any such overhaul works as typical. The new headquarters of the United Automobile Services Limited, in Grange Road, Darlington, provide, however, a good example of an establishment conceived and carried out as a single work on modern lines, and as such contains much that is worthy of close examination by all concerned with the provision of maintenance and overhaul services for a large fleet of passenger motor vehicles.

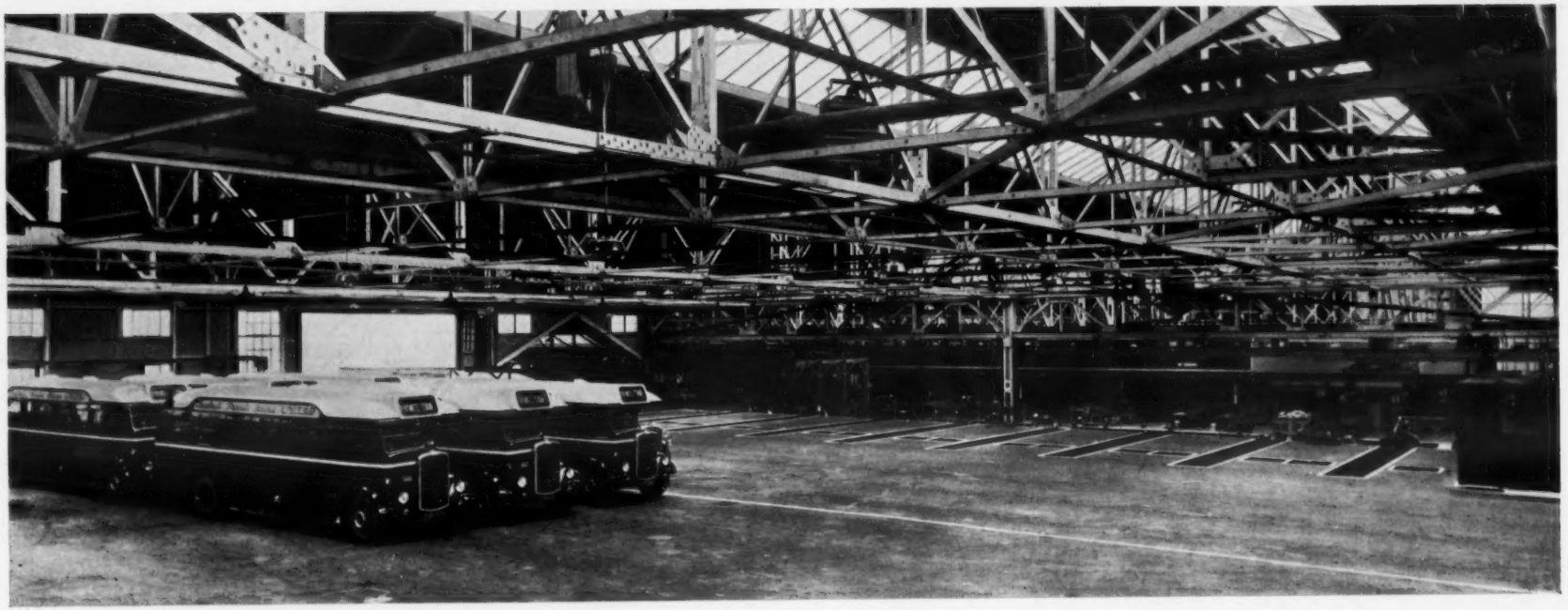
The company was incorporated on April 4, 1912, with a working capital of but £9,000 and headquarters at Lowestoft. In the following month local services were begun in that neighbourhood with four vehicles. Shortly afterwards, in the autumn of the same year, the company formed another local centre at Bishop Auckland in County Durham. A slow and steady increase in vehicles and expansion of routes resulted in the growth of the business to 27 buses by the outbreak of the war. In common with most similar enterprises further progress was severely handicapped, especially as some of the company's vehicles were commandeered for Government use. After the Armistice the area of operations was extended to cover a large part of East Anglia and South Lincolnshire, and in 1919 the fleet rose to a total of 64 and the capital was increased to £46,000. During 1920 a new base was established at Blyth, whence routes were inaugurated throughout the southern part of Northumberland. Some two years later activities were enlarged once more when a branch was opened at Ripon on June 1, 1922, and by the acquisition of sundry bus businesses in Yorkshire during the period 1922-6, the company's services came to cover the whole of the North Riding. By 1928 the fleet had risen to 619 and the capital to £460,000, a tenfold increase in less than a decade.

Following the granting of extensive road powers to the main-line railway companies by Acts of August 3, 1928, the L.N.E.R. acquired substantial interests in various undertakings on the North-East Coast, such as Blumer's Motor Services, Redwing Safety Services, Reliance Express Motors, Eastern Express Motors, and Robert Emmerson & Co. In July, 1929, Tilling & British Automobile Traction Limited and the L.N.E.R. jointly acquired a controlling interest in the United Automobile Services Limited, and, in addition, the bus company entered into a working agreement with the railway with the object of co-ordinating rail and road services in the various areas served by the company's buses. As a natural corollary the United company took over on January 1, 1930, from the L.N.E.R. its other passenger road transport interests in the area, which included most of the recently acquired businesses just mentioned, and also the old established railway-owned buses in the County Durham mining area which had been built up from 1903 onwards by the old North Eastern Railway. Incidentally, the last-named provided but one of many examples which might be cited to show how from the early years of the internal combustion engine certain railway companies

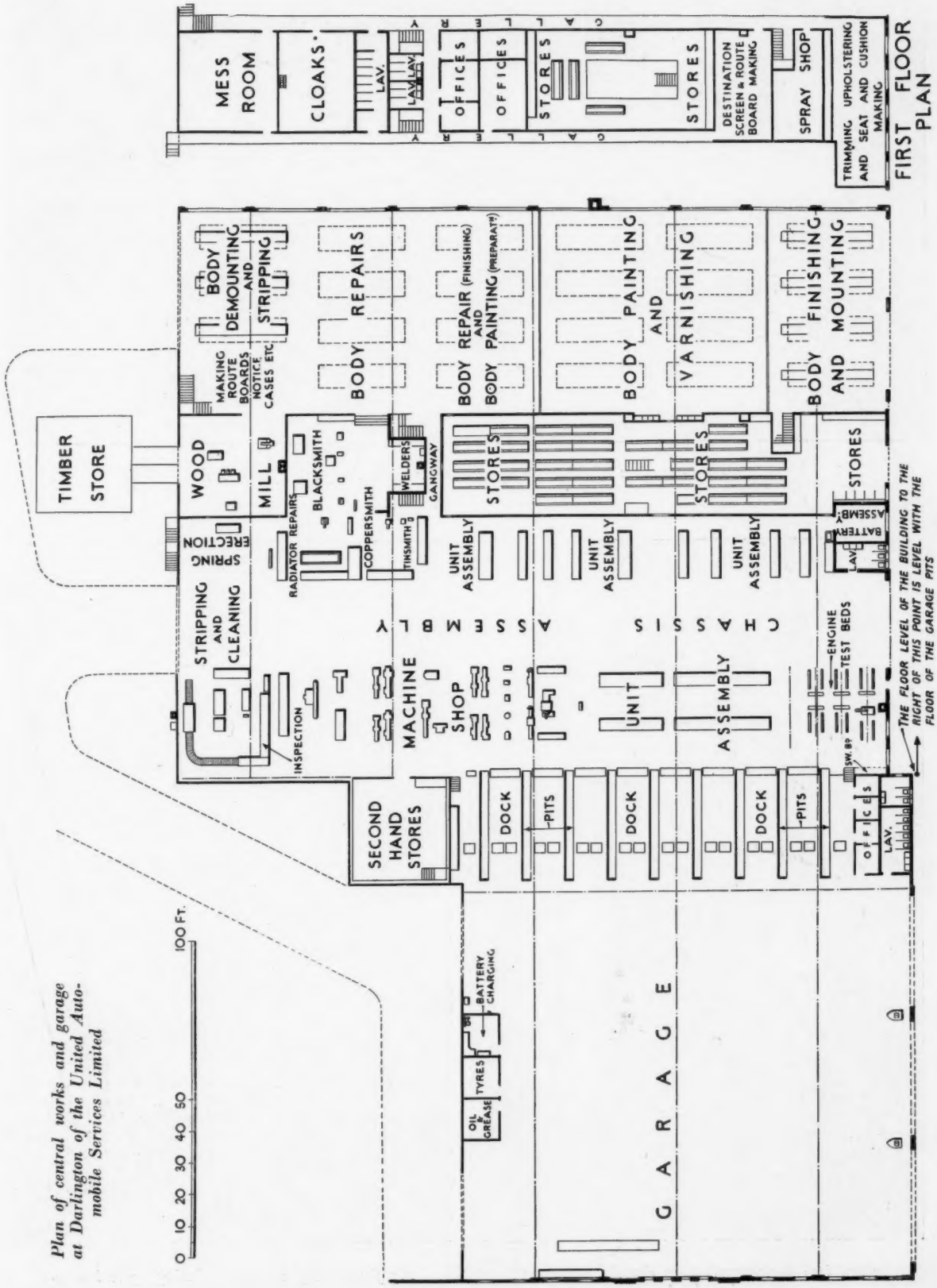


Engine overhaul section, with docking line in background. The two levels can be seen clearly, namely, the garage floor level with the pit tops, and the workshops level with the pit floor

Exterior view of the head office, garage, and works of the United Automobile Services Limited

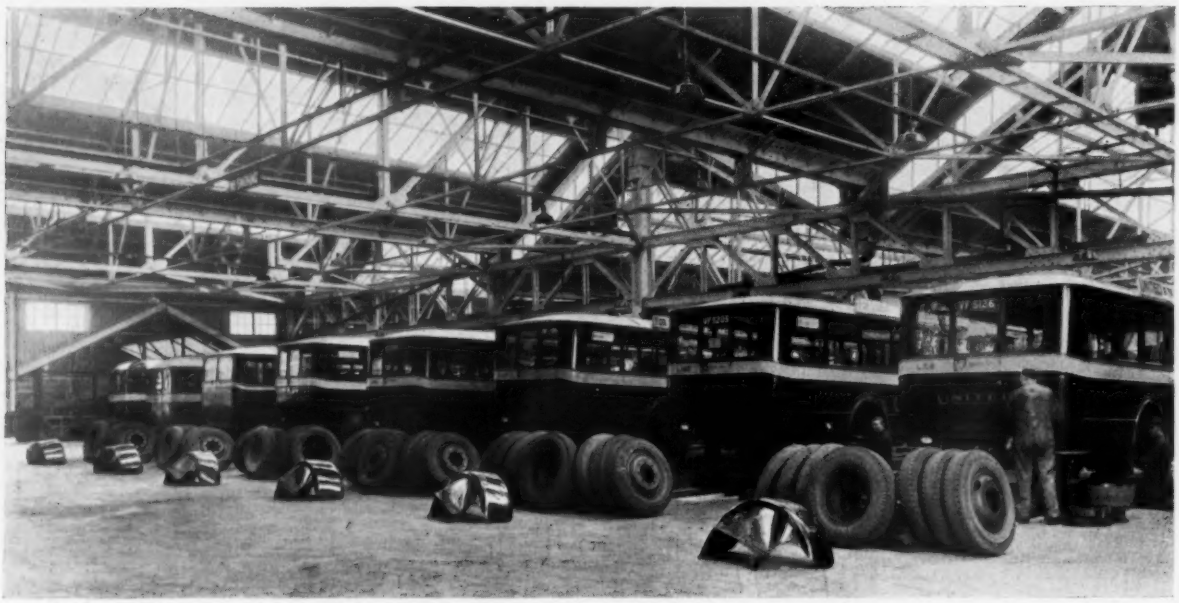


General interior view of the garage, showing the docking line empty, and beyond, the works on the same level as the pit floors

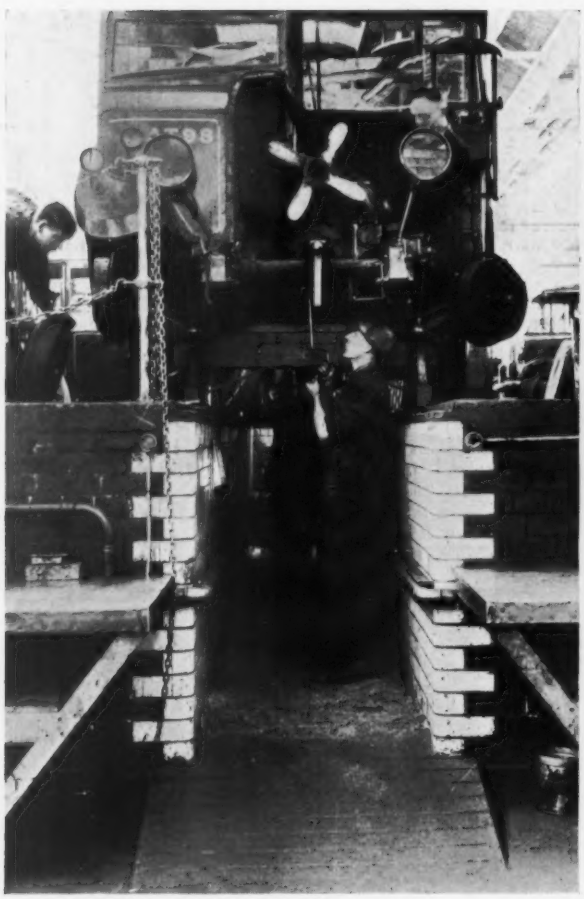


Plan of central works and garage at Darlington of the United Automobile Services Limited

General interior view of the garage, showing the docking line empty, and beyond, the works on the same level as the pit floors



Close-up view of the docking line taken from the garage floor level



View into docking pit from chassis overhaul shop level

Jig for holding crankcase during operations on main bearings

had given practical proof of their desire for transport co-ordination by running feeder road services into remote parts so far as was possible under the limited road powers possessed by the railways in pre-war years.

The year 1930 saw the United fleet reach a total of nearly 1,000 vehicles. Progressive linking up of routes had already resulted in the crystallisation of its services into two main areas, namely, East Anglia, and North Eastern England. In 1926 the head office had been transferred to York so as to be located in a more central position to deal with the ever-extending ramifications of the company. Then, in 1931, the East Anglian interests were disposed of to the Eastern Counties Omnibus Co. Ltd. but this largely disappeared when the proposed elevation was seen, and, as will be noticed from the illustration on page 706, the completed frontage is not unattractive. Apart from the three-storey head office premises, the buildings comprise a large and efficient range of shops for the maintenance and overhaul of vehicles, and also a garage capable of accommodating 60 buses used mainly on local services radiating from Darlington. The whole of the works is fitted with the most modern lighting, ventilating, and heating plant, as well as up-to-date machinery and equipment. In addition to the overhauling of chassis, there is provision for repair, painting, and upholstering of bodywork.

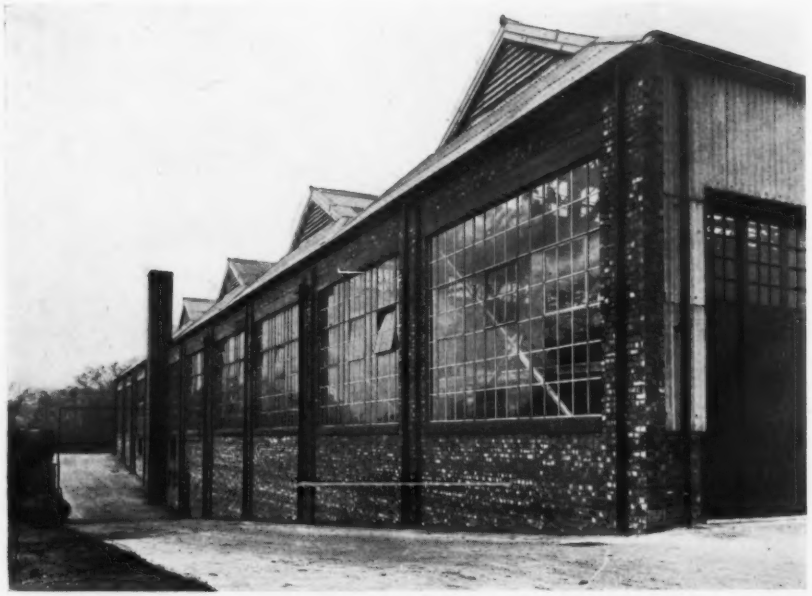
View of chassis overhaul shop showing the full length. The engine overhaul section and pits may be seen on the left

(another L.N.E.R. and Tilling-British associate) in return for a proportional allotment in that company. We have outlined the historical details in order to give some idea of the problems with which the company was faced by reason of the wide-spread territory it served and the mixed fleets it absorbed. The segregation of the East Anglian business facilitated supervision and control of the services and enabled the North East Coast area to be placed under a centralised control on economical and efficient lines. Thus in 1932 the head office was transferred to Darlington where a site was purchased in Grange Road for the erection of a large garage, workshops, and up-to-date offices.

Considerable local opposition was made to the construction of the works on this site, which had previously been occupied by a large house with attractive grounds,

A notable feature of the layout (shown in the drawing on page 707) is that advantage has been taken of a slight slope in the ground to arrange the works on two levels. Thus, viewing the premises from Grange Road, the front part is devoted to the garage; this level finishes with the docking line of nine pits. The shops are behind these and are all on the level of the pit floors, thus obviating the necessity of lowering units into, and raising them from, the pits. Immediately behind the docking line is the engine overhaul section, and beyond this the chassis overhaul shop.

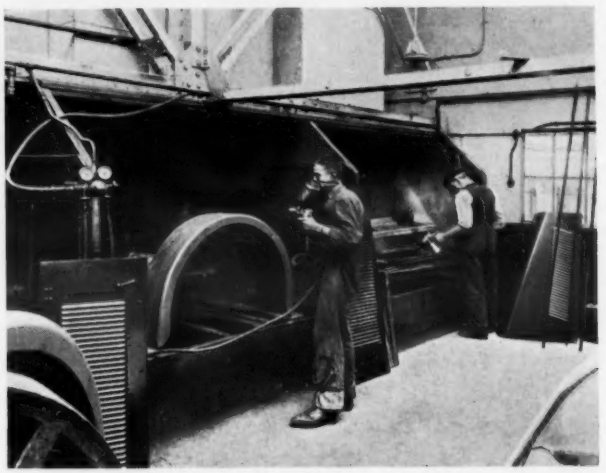
This is all brought out by a study of the plan on page 707, which also emphasises how the work of overhauling is grouped in such a way as to accelerate its progress. There are the two main divisions, all body work being carried out in a range of shops extending across the



An exterior view of the works, showing the generous natural lighting provided for the body shop

A corner of the paint shop. In addition to large window space, special artificial lighting may be seen arranged above every vehicle

Body overhaul shop with large western lights



Spray painting shop

building, while everything to do with the chassis is carried out in another range of shops across the building, and for a greater part of their length these two groups of shops are separated by the main stores. A word may be said here about the latter, as they are arranged on a plan which enables the foremen to see along practically the whole length of them, and so maintain a close supervision over the issue of supplies.

The chassis assembly shops have on the other side the nine docking pits, so that the mechanics are able to remove parts, take them to the benches or the shops where work is to be carried out, and bring them back and do the refitting without the necessity of climbing in or out of the pits. This scheme also facilitates maintenance operations and running repairs, but, for the complete overhaul, the vehicle is driven round to the body shops, where the body is removed and dismantled, and the chassis passes to the entrance to the engineering shops where it is stripped down to the ground if necessary. This is followed by a complete rebuilding in which are utilised parts which have been thoroughly reconditioned. Thus an efficient vehicle can be restored to the fleet in the shortest possible time.

The various units as they are removed from the chassis are cleaned, the equipment for this purpose including a paraffin bath, a Crescent soda washer, and a Foxry chemical cleaner. Road springs have their own special bay in this part of the works, where they are cleaned in a Foxry plant and put through a series of tests. There is likewise a special department for dealing with the radiators, and this, in fact, forms one of a little group of workshops, taking in the blacksmith, the coppersmith, the tinsmith, and the welders. In passing, it may be noted that the location of the blacksmith and the welders has been deliberately planned, as their services have to be available to both the engineering and the body repair sections of the works. Units and components are all carefully inspected after cleaning. Those that require attention go to the machine shops or elsewhere before being passed on to the unit assembly benches or, if their place in the rebuilding of the chassis has had to be taken by other reconditioned parts, to the secondhand stores.

The assembly benches are disposed so that the work may progress as smoothly as possible as the chassis makes its way through the shop. The biggest benches are given over to the assembly of the larger units like engines and back axles, while the others deal with the smaller units. Engines which have been given a complete overhaul or subjected to major adjustments have to undergo a searching test, and for that purpose a number of stands are arranged in a corner of the shop adjacent to the dock pits. At that end of the chassis assembly shop there is also a room where batteries which need attention are dealt with, but any charging is done by a plant in the garage.

Before passing to the body works, connected to the chassis side by a gangway at the inner end of the stores, it may be observed that here a second floor has been arranged. Part of it is given up to a further store where the stocks of upholstering materials are kept, while beside it are the superintendent's office and a drawing office. On this floor there are also three shops, one in which route boards are made, another in which the spraying of small wooden fittings and parts is carried out, while in the third trimming and upholstery is done, principally of such details as seats and cushions.

We now come to the section of the works which is concerned with the maintenance of the bodywork at that high standard which has become a tradition with the United Automobile Services fleet. Its organisation has been planned on lines analogous to that of the rest of the establishment with the idea of keeping the work progressing, in all senses of the word, through the shops. At the entrance to this part of the works, three pits have been arranged, as shown on the plan, to facilitate the removal of the bodies and the stripping of them. They are then moved forward into the repair shop where the repairs or replacements are carried out. The next step is through the big Esavian folding doors into the paint shop where the final painting and varnishing is carried out under the best conditions for such work. The shop has, in fact, folding doors at each end, so that the temperature may be maintained at a constant level, and special care has been taken to ensure exceptionally good ventilation without the creation of draughts, or the carrying of dust. Lighting, too, has been given expert attention. During the day the great windows along one side of the shop admit the maximum amount of light, while at other times the banks of electric lights with their special shades ensure the even distribution of illumination.

Conveniently placed near the body repair shop is a wood mill adequately equipped with power saws, planing machines, and other up to date wood-working tools by Wadkin & Co. Ltd., and other well-known makers. There is also a timber store, and this is arranged just outside the main building but directly connected to the wood mill.

A noticeable feature of the garage which is brought out in the view on page 706 is the absence of obstructions. The same view illustrates the arrangement of the dock pits, as well as the small shallower pits that are located so that the mechanics may carry out adjustments or repairs to the back axle hubs or brakes without discomfort. All the pits, both the nine main ones and the eighteen smaller ones, when not in use, are covered by steel gratings which permit of easy inspection by the foreman when he is making his rounds. In addition to the docking pits, there is in the garage a long inspection pit. We have mentioned the battery charging plant, and it only remains to add that the other equipment includes petrol and oil storage systems, and a tyre department in which all matters of tyre maintenance are handled. In that connection it may be mentioned that as long ago as 1920 the United Automobile Services fitted pneumatic tyres to some of its vehicles for test purposes, and the concern claims to be the first large bus operator to try them in public service. The whole U.A.S. fleet was eventually so equipped by 1926.

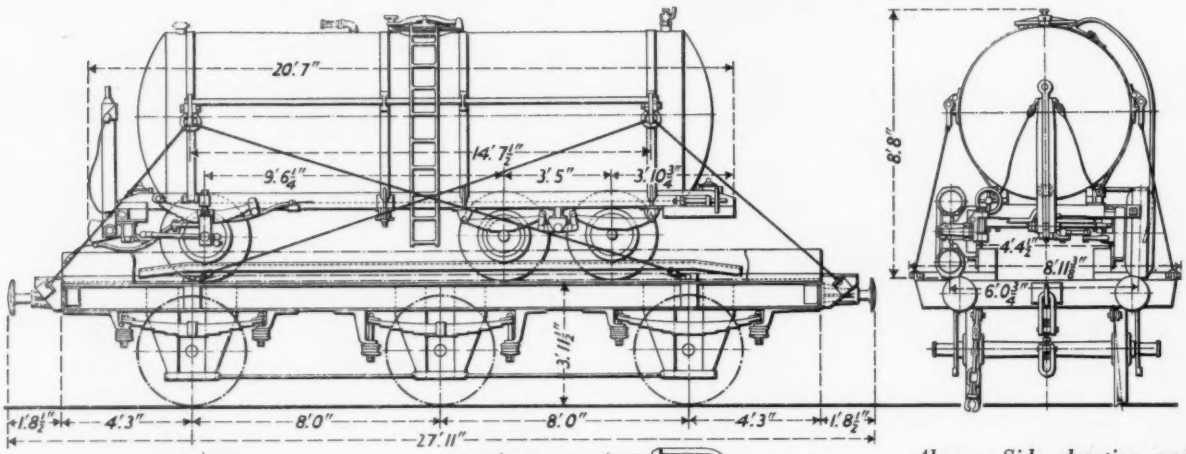
London Bus Drivers and Conductors

The London Passenger Transport Board has issued an official statement to the effect that the board has received from the Transport and General Workers Union notice to terminate the present agreement relating to rates of pay and conditions of service of Central Area bus drivers and conductors. In reply to the claim of the union first for a 7-hour day, and subsequently for a 7½-hour day, the board has explained at its meetings with the union that the question of a shorter working day must be regarded as a national problem and not one which concerns the London Passenger Transport Board alone. In any event, the board has stated that the cost of meeting such a claim is quite beyond its financial resources, even if the claim could be limited to Central Area bus drivers and conductors, who represent only one-third of the board's staff. At the last meeting with the union one or two questions, apart from the 7½-hour day, were still outstanding and under consideration by the board, and arrangements are now being made for a further meeting with the union at an early date in order to discuss the situation to see exactly what are the issues between the board and the union, and whether there are any ways of meeting them.

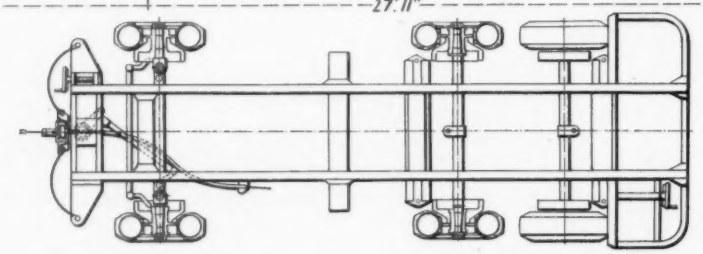
Road-Rail Tank Trailers

(*See article opposite*)

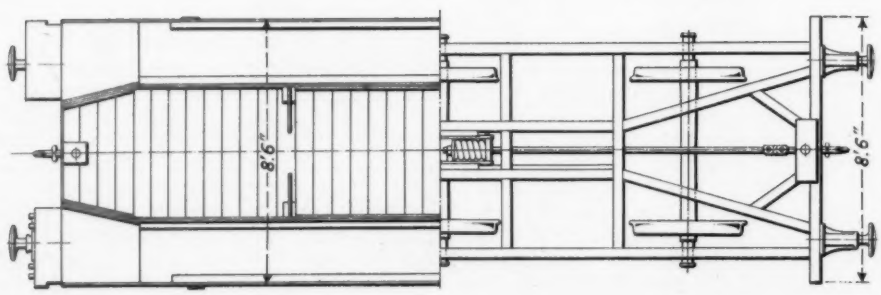
Dyson six-wheel road-rail milk trailer ready for haulage on the road



Above: Side elevation and end view of Dyson six-wheel road trailer mounted on an L.M.S.R. truck



Left: Plan of road trailer



Left: Part plans of L.M.S.R. six-wheeled truck with special guide plates for loading and holding the road trailer in position. The carrying capacity of the rail truck is 15 tons, and its tare weight 12 tons 14 cwt.

New Dyson Road-Rail Milk Tank Containers

A FLEET of Dyson road-rail milk containers, generally similar to those already used by the United Dairies, has recently been introduced for service on the L.M.S.R. by Rothwell's Dairies. These vehicles, which consist of a six-wheeled pneumatic-tyred road trailer mounted on a six-wheeled railway truck, are brought to the end-loading dock at Euston station where they are run off the railway trucks and hauled by a Latil tractor to the dairy. There the milk is pumped out, the tank cleaned, and the trailer taken back to Euston.

These trailers and railway trucks incorporate the various Dyson-Marenbon Patented road-rail features which ensure that as the trailer is backed on to the truck it is automatically guided into position and at the same time the weight is taken off the pneumatic tyres. The guide plates, which guide the trailer into position prevent any side movement on the truck, and wheel bars prevent any backward or forward movement. Lashing chains are used to secure the trailer to the truck as an additional precautionary measure. It should be noted that while it is being carried on rail, the trailer is supported by its special cast steel rail wheels which are attached to the hubs alongside the main road wheels. A spring deadening device is also fitted which damps out any possible movement of the springs, with the consequence that when it is in position, the trailer is practically as stable as a fixed tank.

These latest trailers represent an extension of the existing system as they are the first pneumatic-tyred six-wheelers to be put into service. The drawings opposite show the main constructional details. It may be added, however, that the trailer is fitted with a 2,000 gall. capacity Pfaudler glass-lined tank made by the Enamelled Metal Products Corporation (1933) Limited, Fife. It is covered with 2 in. of cork insulation and steel outer sheeting.

The trailer construction is interesting as involving a six-wheeler with Ackerman steered front wheels and interconnected rear springs. Apart from stability while on the rail, one of the main requirements of these road-rail trailers is a low centre of gravity. The trailer has therefore been fitted with 10·50 × 13 in. Dunlop tyres, and the Ackerman steering allows the tank to be sunk right in between the wheels.

Left: A 90-ton transformer in transit from the manufacturer's works to its destination at Barton. One of Pickfords Heavy Haulage Department 100-ton vehicles was employed

Right: One of a fleet of seven "Sturdy" 4-ton 12-ft. wheelbase vehicles, with detachable hinged sides and tailboard, recently supplied by John I. Thornycroft & Co. Ltd. to the L.N.E.R. The unladen weight is under 2½-tons. The "Sturdy" chassis was described on page 108 of our Road Transport Section of January 15

Overseas Notes

Manchurian National Highways Road Services

Since publishing on page 491 of our Road Transport Section for March 12 last a brief account of the development of railway-co-ordinated road services in Manchukuo, we have received further information of the progress made. By the end of June, 1936, 7,354 km. (4,570 miles) of the proposed 60,000 km. (37,283 miles) of state roads, over which state railway-owned buses are operated, had been built. The scheme, which is scheduled to be completed in ten years, entails the following programme of work:—

First class roads, 12,500 km. (7,767 miles).
Second class roads, 12,500 km. (7,767 miles).
Third class roads, 35,000 km. (21,749 miles).

There are also a number of independent bus operators providing services where profits can be secured. The latest comparative figures available are those for 1935, which are as follow:—

	State	Private	Total
No. of routes operated	55	70	125
Total length	9,935 km. (6,173 miles)	4,693 km. (2,916 miles)	14,628 km. (9,089 miles)
No. of vehicles ..	331	542	873
Capital invested (MY)	2,460,882	3,807,600	6,268,482

Indian Road Fund Resolution

The non-official European group in the Indian Legislative Assembly took a prominent part in the debate on the revised Road Fund resolution recently passed in a thin House. The clause in the re-drafted resolution, which has been widely criticised, relates to the power reserved to the Governor-General-in-Council of resuming the whole or any part of a provincial allotment in the event of a Provincial Government failing to give effect to the recommendations of the Government of India for the regulation and control of motor vehicles. It is felt in commercial circles that the real object of this clause is to impose restrictions on road transport in order to help the railways; the inclusion of the Chief Commissioner of Railways in the Standing Committee for Roads encouraged this feeling. Sir Frank Noyce's defence of the new provision was based largely on its acceptance by the Transport Advisory Council. The European group succeeded in effecting some important amendments calculated to protect road interests. One of these provides that the nominated official member on the standing committee shall not be connected with the railways and that the chairman of the committee shall not be the Chief Commissioner of Railways.

Mechanical Horses for South Africa

The Karrier Cob is now being operated with great success by the South African Railways, and, as a result, a further 85 tractors are to be added to the already quite considerable fleet. This recent order, which follows one for ten similar vehicles delivered in December last, has been placed through the agency of Rootes Limited, of London. The accompanying illustration shows a batch of Cob Junior tractors for the South African Railways ready to leave the Karrier factory at Luton. The vehicles incorporate the original BK type coupling gear, one which functions with trailers that are four-point supported when detached from the motive unit.

A batch of Karrier Cob Junior tractors leaving the Luton factory for the South African Railways

Argentine-Chilean Road Traffic

The tourist department of the Province of Mendoza has just issued some interesting details regarding the transit of motor passenger vehicles between Argentina and Chile, in so far as these come under the cognizance of the traffic control office at Uspallata. During the year 1936, some 2,040 public and 1,289 private motorcars passed through Mendoza *en route* for Chile, conveying a total of 10,082 passengers. In the opposite direction, 1,970 public and 1,234 private cars entered Argentina, bringing a total of 9,235 passengers. Up to February 11 of this year, a total of 1,211 motorcars entered Argentina from Chile, while 1,423 left for Chile, carrying a total of 8,399 persons. A description of this overland motor route, over which the Compañia Internacional de Transportes Automoviles (affiliated to the Buenos Ayres & Pacific Railway) operates a passenger service, was published in our Road Transport Section of August 30, 1935.

ISLE OF THANET TRANSPORT.—On Wednesday, March 24, the Isle of Thanet tramway services ran for the last time, and on the following day replacing motorbuses were introduced by the East Kent Road Car Co. Ltd. On page 498 of our Road Transport Section for September 25 last we reproduced a map showing the extent of the tramway and light railway system of the Isle of Thanet Electric Supply Co. Ltd. and outlined the arrangements for the East Kent Road Car Co. Ltd. to acquire the goodwill of the transport services.

RAILWAY NEWS SECTION

PERSONAL

Mr. Alfred Brown, who, as recorded in our issue of April 2, is retiring from the position of District Goods Manager, Leeds, L.N.E.R., entered the service of the North Eastern Railway as a station clerk at Seamer in May, 1886. In 1899, after having held appointments at Scarborough, Hull, and Darlington, and in the Accountant's Office at Newcastle, he left the N.E.R. to become Secretary to the General Manager of the Cambrian Railways. Returning to the N.E.R. in 1901, Mr. Brown entered the General Manager's Office at York, and was in charge of important sections of work for eight years. He became District Goods Agent at Hull in 1909.

Mr. Alfred Brown,

District Goods Manager, Leeds, N.E. & Southern Areas, L.N.E.R., 1927–37

and Assistant District Goods Manager in the next year. In 1913 he took charge of the Leeds District, remaining there as District Goods Manager until he was appointed Assistant Chief Goods Manager, N.E.R., in 1922. After grouping he became, in 1925, District Goods Manager at Hull, L.N.E.R., and was transferred to Leeds as District Goods Manager for the North Eastern and Southern Areas in 1927, which position he vacates on his retirement.

Mr. W. E. Blakey, who, as announced in our issue of April 2, has been appointed District Goods Manager, Leeds, L.N.E.R., in succession to Mr. Alfred Brown, comes to that position from the post of Assistant Goods Manager, North Eastern Area, L.N.E.R., to which he was appointed last year (see THE RAILWAY GAZETTE of May 15, 1936). Mr. Blakey's career began on the North Eastern Railway, as a junior goods clerk, in 1904. He was selected as a Traffic Apprentice in

Mr. R. H. Edwards,

Appointed Assistant Divisional Docks Engineer, Eastern Ports Division, G.W.R.

Mr. John Rankin,

Appointed Stationmaster, Glasgow (Central), L.M.S.R.

July, 1914, and after a period of active service during the war, returned to the railway at Newcastle Forth goods station in 1919. The next year saw him as head of the Staff Department in the General Superintendent's Office at York, from which he was in 1923 appointed Assistant District Superintendent at Newcastle, L.N.E.R. Becoming District Superintendent at Darlington in 1927, he proceeded in 1932 to the post of District Goods Manager, Middlesbrough, remaining there until promoted to be Assistant Goods Manager, North Eastern Area, in 1936.

Mr. R. H. Edwards, A.M.Inst.C.E., formerly Resident Assistant at Cardiff Docks, who has been appointed Assistant Divisional Docks Engineer, Eastern Ports Division, G.W.R., entered the service of the Taff Vale Railway in 1917, at Cardiff, as an articled pupil to the Chief Engineer of that company. On completion of his articles, he was

Mr. W. E. Blakey,

Appointed District Goods Manager, Leeds, N.E. & Southern Areas, L.N.E.R.

appointed to the engineering staff, and, at the time of the amalgamation, was Assistant to the Resident Engineer at Penarth Docks. In 1923 he was promoted to the Resident Docks Engineer's Office at Barry Docks, and in 1926 to the Divisional Engineer's Office at Newport. In 1929 he was at the Swansea Docks for a short period, and later was appointed to the Chief Engineer's Office at Paddington. In 1932 he was promoted to Resident Assistant, Newport Docks, and at the end of the same year to a similar position at Cardiff Bute Docks, which he now vacates. Mr. Edwards, who is an Associate Member of the Institution of Civil Engineers, and a Fellow and Member of Council of the Permanent Way Institution, commands, with the rank of Major, the 151st (G.W.) Railway Construction Company R.E. (S.R.),

Paris-Calais express headed by a 4-6-2 + 2-6-4 Beyer-Garratt locomotive destined for the Algerian Railways. The train is seen in Calais Maritime station shortly after its arrival on the test run described on page 672 last week

Photo] *The annual dinner of the Institution of Locomotive Engineers* (*See report on page* 720) [Swaine

which unit he joined upon its formation in 1925.

Mr. John Rankin, whose appointment as Stationmaster, Glasgow (Central), L.M.S.R., we recorded last week, has already been Assistant Stationmaster there for seven years, prior to becoming in 1925 Stationmaster at Perth General, whence he is now promoted. Mr. Rankin entered the service of the Caledonian Railway in 1891 as signal box book marker at Newton. A wide experience on the traffic side of that system led up to his appointment in 1912 as Goods and Mineral Train Inspector in the District Superintendent's Office at Glasgow Central. After a period as Traffic Inspector in the Aberdeen District, he returned to Glasgow (Central) as Assistant Stationmaster in 1918, serving there seven years before proceeding to Perth General as Stationmaster. He leaves Perth for Glasgow (Central) again, this time as Stationmaster, at the end of the present month.

Mr. John Lummis has been appointed Auditor of Freight and Telegraph Receipts, Canadian Pacific Railway, in succession to the late Mr. E. H. Bridges, who died on March 6. Mr. E. F. Lawson succeeds Mr. Lummis as Assistant Auditor of Freight and Telegraph Receipts.

Mr. R. E. Thomas, Deputy General Manager, Egyptian State Railways, has been appointed to succeed Mr. P. M. Tottenham, C.B.E., as Chief Inspecting Engineer for those railways in England. Mr. Tottenham is resigning in August next, but Mr. Thomas is expected to leave Egypt for London this month. The name of his successor has not yet been announced.

Mr. Adolph E. Hassek, who has for many years been Manager of the International Sleeping Car Company for the Far East, with headquarters at Harbin, is being transferred to Shanghai consequent upon the office of the Wagons Lits at Harbin having been taken over by the Manchukuo State Railways. Mr. Hassek has had many difficult and delicate problems to deal with during his tenure of office at Harbin, where he is well known and respected for his ability and tact.

We regret to record the death on March 29 of Mr. R. H. Thorpe, M.Inst.C.E., M.Am.Soc.M.E., who was engaged in the first installations of high-pressure hydraulic lifts and escalators on the London tube railways, and of lifts for the Glasgow Harbour Tunnel. Mr. Thorpe was Vice-President of the Otis Elevator Company, New York, and a director of Waygood-Otis Limited, and Waygood-Otis (South Africa) Limited. He also had experience in the United States, both in the lift business, and as Assistant Engineer of the New York West Shore & Hudson River Railroad.

INDIAN RAILWAY STAFF CHANGES

Mr. A. Cooper, Deputy Chief Operating Superintendent (M), N.W.R., has been granted seven months' leave preparatory to retirement, as from May 7.

Mr. F. R. Morgan, Chief Engineer, N.W.R., has been granted four months' leave prior to retirement, as from April 10.

Mr. O. B. Lacey, Deputy Chief Mechanical Engineer, E.B.R., has been permitted to retire from Government service as from February 12.

Mr. H. G. Jones has been appointed to officiate as Deputy Chief Mechanical Engineer (Works), E.I.R., as from November 13, 1936.

Khan Bahadur Barkat Ali has been posted as Deputy Chief Accounts Officer, N.W.R., as from February 23.

Mr. C. G. Graham has been appointed to officiate as Deputy Agent (Works), G.I.P.R., in place of Mr. E. W. Russell, granted two years' leave preparatory to retirement.

Mr. W. Coltman, Locomotive and Carriage Superintendent, A.-B.R., has been granted leave as from March 3, and Mr. A. G. Blake, his Personal Assistant, is acting for him during his absence.

Mr. R. L. Ray, Chief Mechanical Engineer, E.I.R., has been permitted to retire from Government service as from January 3.

Mr. P. Hackforth, Chief Engineer, E.I.R., has been permitted to retire from Government service as from February 21.

Mr. R. Mair has been appointed to officiate as Deputy Agent, Organisation, E.I.R., as from February 27.

Mr. J. C. Gibson, Deputy Chief Mechanical Engineer, E.I.R., has been granted nine months' leave, as from February 28.

Mr. R. L. W. Meehan, officiating Chief Mechanical Engineer, E.B.R., has been granted eight months' leave, as from April 5.

Mr. L. V. Pont, who was recently officiating as Deputy Chief Engineer, Signals, N.W.R., has been granted 6¾ months' leave preparatory to retirement, as from April 20.

We regret to note the death, on March 22, of Colonel Alfred Dyke Acland, Bt., C.B.E., partner in W. H. Smith & Son. He was trained as an engineer on the G.W.R., was articled to Sir John Wolfe Barry, and was an Assistant Engineer on the final link of the Inner Circle underground railway. He was awarded the C.B.E. and Croix de Guerre for conspicuous service during the war.

We regret to record the death, on April 1, of Sir John Brooke, Deputy Chairman of the Electricity Commission. In 1920 he was made Principal Assistant Secretary to the Ministry of Transport, becoming Secretary in 1923. Sir John, who received the C.B. in 1919, and was knighted in 1928, was Secretary of the Central Electricity Board from its formation, and resigned that post to become an Electricity Commissioner in 1929.

Lt.-Col. Sir John Chancellor has been elected a Director of Associated Electrical Industries Limited.

It is with regret that we have to record the death, on March 30, of Mr. E. W. Hudson, who was a legal official at the Ministry of Transport in its early days, and in 1919 was appointed Solicitor to the Electricity Commision, though continuing to advise the Minister of Transport in electrical matters. He resigned in 1934.

Mr. Peter Bennett was on April 7 appointed Deputy-President of the Federation of British Industries to assist Lord Hirst in the execution of his duties. Mr. Bennett who is a Managing Director of Joseph Lucas Limited, has been for some years a Member of the Grand Council of the Federation as well as Chairman of the F.B.I. Birmingham District Committee. As a member of the Empire Committee also, he has been closely connected with Imperial trade problems.

PRESENTATION PORTRAIT OF MR. G. H. NISBETT

An interesting ceremony took place in Liverpool on April 2, when, at the annual meeting of British Insulated Cables Limited, the shareholders presented for the custody of the board, a portrait of Mr. George H. Nisbett, M.Eng., the Managing Director of the company, painted by Sir William Llewellyn, President of the Royal Academy.

In accepting the portrait Sir Alexander Roger, the Chairman, paid a high tribute to Mr. Nisbett's great and outstanding services to the company during the last 43 years, and more particularly in its successful developments in recent years. It was through his initiative that British Copper Refiners Limited was established in Prescot for the production, by the fire refining process, of British Empire copper for electrical and other purposes. Mr. Nisbett also took an active part in the inception and working of the Cable Makers' Association, which has been of great benefit to the industry in promoting standardisation of both paper insulated and rubber insulated cables. His influence in cable design has been widely felt, and in the development of high voltage transmission he has borne a conspicuous share.

In connection with the various schemes for the welfare of this great company's employees, educational, thrift, pensions, convalescent home, &c., he has wholeheartedly identified himself, and is held in highest esteem throughout the whole industry. Mr. Nisbett is Chairman of seven electrical supply companies, a director of several cables and copper companies and a Justice of the Peace of the County of Lancaster.

London Transport Coronation Arrangements

After six months of collaboration between the London Passenger Transport Board and the traffic experts of Scotland Yard, plans have been agreed for the traffic arrangements to deal with the 36-hour Coronation rush. Both the details of the special London Transport services and the Police regulations governing private cars and taxicabs are embodied in an eight-colour souvenir leaflet now available.

The main features of the Underground railway arrangements are that there will be services throughout the night of May 11–12; special traffic restrictions will be in force on May 12, Coronation day itself; and trains will continue to run for about 1½ hours beyond their normal times on the night of May 12–13.

One of the maps we reproduce shows the Underground railway services that will work without interruption through the night before the Coronation, the night of May 11–12. Before 4.30 a.m. trains may be boarded only at the stations named. At stations marked "R" exit and interchange will be restricted. It has been decided that 12 of the less important stations shall be closed all day on May 12. They are as follow: Aldwych, Covent Garden, Regent's Park, Great Portland Street, Mornington Crescent, Marlborough Road, Caledonian Road, Arsenal (Highbury Hill), Drayton Park, West Harrow, North Ealing, and West Brompton. Most of those stations not open all night will be opened at 4.30 a.m. on May 12, but a few will not be opened until 5.30 a.m.; the other map shows the varying times. It indicates also four stations which will be closed on May 12 until after the Royal Procession has passed, namely: Westminster, Trafalgar Square, Hyde Park Corner, and Bond Street.

Restricted Stations

Space in six key stations will be subjected on May 12 to pressure of traffic far beyond normal, and it is felt that without some restrictions movement would be seriously impeded or even stopped. The stations affected and the special temporary regulations that have been arranged are as follow:—

Marble Arch.—No admittance from the street till after the Procession. Open only for the exit of passengers arriving from the west, and only until 9 a.m.

Piccadilly Circus.—No admittance from the street till after the Procession. Open only for the exit of Bakerloo Line passengers arriving from the north, and only until 9 a.m. No interchange between the Bakerloo and Piccadilly Lines.

Charing Cross.—Morden–Edgware trains coming from the south will not stop at this station; otherwise there will be normal admittance, exit, and interchange.

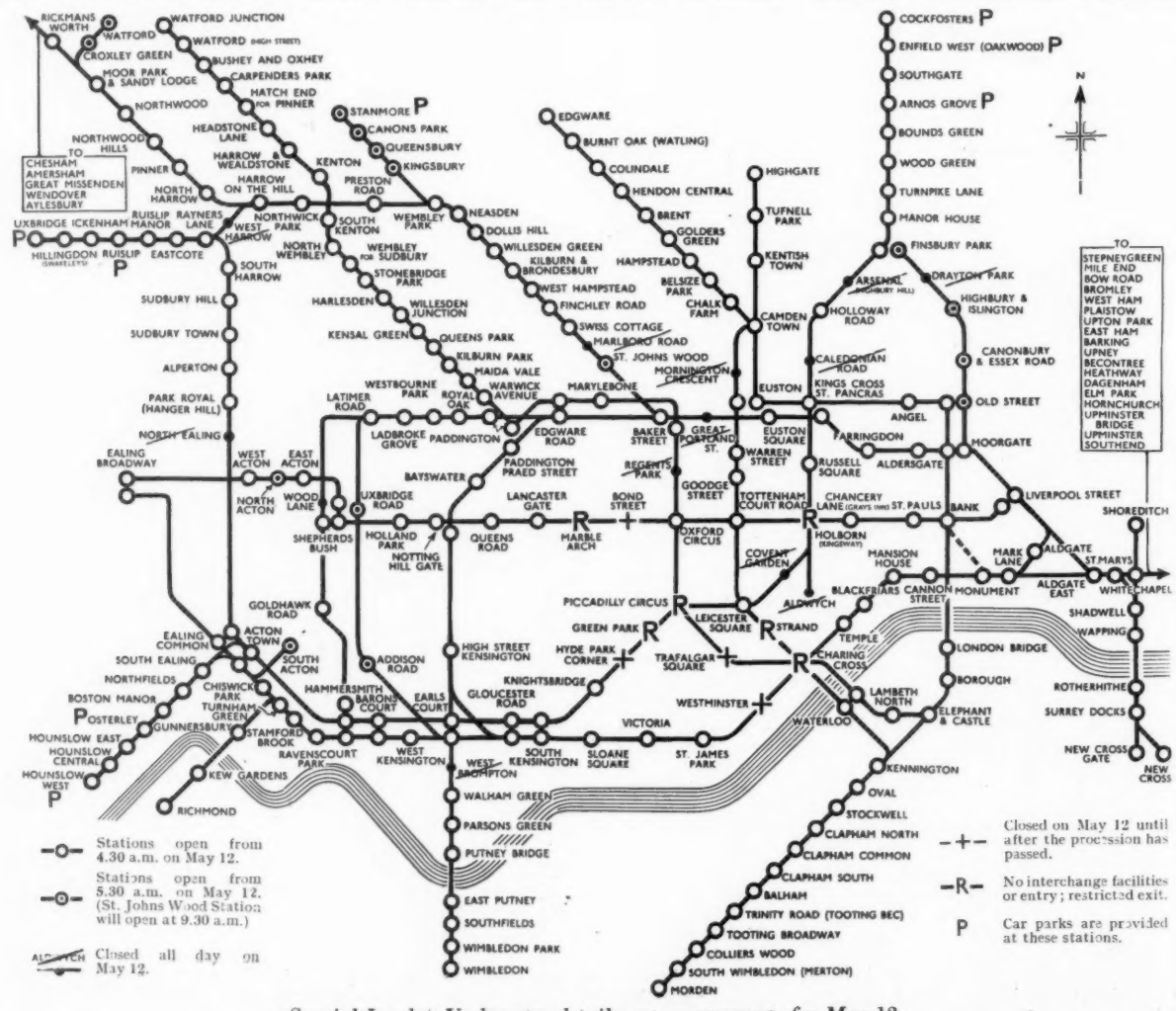
Strand.—No admittance from the street. Open only for the exit of passengers from the south.

Green Park.—No admittance from the street. Open only for the exit of passengers from the north.

Holborn (*Kingsway*).—No admittance from the street. Open only for the exit of passengers. No interchange between Piccadilly and Central London Lines.

Road Transport

Surface transport will be affected considerably by the fact that a large area



Special London Underground railway arrangements for May 12

Underground services for the night of May 11–12. Before 4.30 a.m. trains may be boarded only at the stations named. At "R" stations exit and interchange will be restricted

in Central London called the Coronation Area will be closed to general vehicular traffic throughout May 12. This area is bounded by Grosvenor Road, Chelsea Bridge Road, Sloane Square, King's Road, Sloane Avenue, Brompton Road, Cromwell Road, Exhibition Road, Kensington Road, Church Street, Bayswater Road, Grand Junction Road, Marylebone Road, Euston Road, Woburn Place, Southampton Row, Holborn, St. Bride Street, New Bridge Street, Blackfriars Bridge, Blackfriars Road, London Road, Newington Butts, Kennington Lane, and Vauxhall Bridge. These thoroughfares themselves will, however, constitute a Ring Road continuously open for all classes of traffic.

There will, however, be a ring of special road terminals within and on the borders of the Coronation Area, all within walking distance of the Royal Route. On Coronation Eve, May 11, trams, trolleybuses, and Green Line coaches will run as usual until about 9 p.m. After 9 p.m. those routes which cross the Coronation Area may have to be curtailed or diverted. Bus, tram, and trolleybus services, whether diverted or not, will cease at normal times, but coach services will run up to 12.30 a.m. The usual all-night bus and tram services will be strengthened. On Coronation Day first trams and trolleybuses to London will leave their outer terminals to arrive in the Coronation Area by about 4 a.m.; the first buses will arrive about 5 a.m.; and the first Green Line coaches about 6 a.m.

Last buses, trams, and trolleybuses from London on the night of May 12–13 will leave their road terminals in or on the border of the Coronation Area at 2 a.m. Last Green Line coaches will leave their road terminals in the Coronation Area at 2.30 a.m. As already mentioned, during the night of May 12–13 all Underground trains will continue running about 1½ hours later than usual; thus, the last train, which leaves Charing Cross normally at 12.15 a.m., will leave about 1.45 a.m.

Questions in Parliament

Railway Electrification in Lancashire

Mr. W. J. Kelly (Rochdale—Lab.) on April 7 asked the Minister of Transport if he had any information as to the steps being taken to electrify the railways running from Manchester to Rochdale and other Lancashire towns.

Mr. Hore-Belisha (Minister of Transport): Apart from the electrification of the L.N.E.R. Company's line from Manchester to Sheffield, which is being undertaken in accordance with the Railways (Agreement) Act, 1935, I am informed that no other proposals for railway electrification in the Manchester district are at present under consideration by the L.N.E.R. or the L.M.S.R.

R.A.S. Summer Programme

(*See editorial note on page* 689)

Several new features in the summer operations of Railway Air Services Limited were announced this week by Sir Harold Hartley, Chairman. The extended services will begin this year on May 10, so as to provide convenient facilities for Coronation visitors.

Seventy-six regular air services will be operated as follow:—

	No. of services
Royal Mail service	
London (Croydon)—Belfast (via Birmingham—Stoke-on-Trent Liverpool)	4
Manx services	
Manchester—Isle of Man (Sundays included)	12
Liverpool—Isle of Man ..	11
Blackpool—Isle of Man ..	12
Leeds and Bradford—Isle of Man	5
Carlisle—Isle of Man	2
Belfast—Isle of Man	4
Glasgow—Isle of Man	6
Northern Section	
Belfast—Glasgow (including four on Sundays in July and Aug.)	6
Midland, South, and West Section	
Liverpool — Brighton (via Birmingham — Gloucester and Cheltenham — Bristol — Southampton—Ryde) ..	4
Bristol—Cardiff	4
Cardiff—Plymouth (via Exeter)	2
Southern Section	
Brighton—Ryde	4

On the Royal Mail service between London and Belfast, two services each way daily will be provided for the first time. The new service, operating in the afternoon, in addition to providing "there and back in a day" facilities to all points on the route, will meet the increasing demand of travellers to or from the Continent by providing connections at Croydon airport with the majority of the air services to or from the chief centres of Europe. By this new link a great many connections are made possible; passengers can leave, for example, Rome, Cannes, Copenhagen, Basle, or Berlin in the morning and have tea in Liverpool or Belfast the same day. In the reverse direction, travellers leave Belfast at 9 a.m. or Liverpool at 10.30 a.m. and are in Paris at 2.45 p.m.; Amsterdam at 3 p.m.; Cologne at 4.15 p.m., and Geneva at 7.45 p.m. The afternoon services between Belfast and London will call in both directions at the Isle of Man, thus providing a through service between London and the Isle of Man in each direction with a journey time of 155 min.

The Manx Airway services, which are operated in conjunction with the Isle of Man Steam Packet Company, are continued during the summer with additional services to many points from the Isle of Man. On the South Coast more services are available between Brighton and Ryde (Isle of Wight). Connections are made at Exeter, Southampton, and Brighton with the services operated from these centres to the Channel Islands by Jersey Airways Limited.

Institution of Locomotive Engineers Annual Dinner

(See illustration on page 716)

A record attendance of over 400 members and guests was present at the annual dinner of the Institution of Locomotive Engineers held under the chairmanship of Mr. W. A. Stanier, Chief Mechanical Engineer, London Midland & Scottish Railway, and President, Institution of Locomotive Engineers, on April 1, at the Trocadero Restaurant, London, W.1.

Mr. W. A. Stanier was supported at the top table by Sir Josiah C. Stamp, G.B.E., G.C.B., D.Sc., LL.D., F.B.A., Chairman and President of Executive, L.M.S.R., Sir Ralph Wedgwood, C.B., C.M.G., Chief General Manager, L.N.E.R., Mr. Robert Holland-Martin, C.B., Chairman, Southern Railway, Sir John E. Thornycroft, K.B.E., President, Institution of Mechanical Engineers, Mr. W. V. Wood, Vice-President, L.M.S.R., Hon. S. M. Lanigan-O'Keefe, C.M.G., High Commissioner for Southern Rhodesia, Mr. R. E. L. Maunsell, M.A., C.B.E., Chief Mechanical Engineer, Southern Railway and Past-President, Lt.-Col. A. H. L. Mount, C.B., C.B.E., R.E. (ret.), Ministry of Transport, Sir Alexander Gibb, G.B.E., C.B., President, Institution of Civil Engineers, Mr. H. T. Young, President, Institution of Electrical Engineers, Mr. W. K. Wallace, President, Permanent Way Institution, Lt.-Col. F. R. Collins, D.S.O., President-elect, 1937–38, Institution of Locomotive Engineers, Mr. H. M. Proud, President, Institution of Railway Signal Engineers, Major H. P. M. Beames, T.D., Vice-President, Loughnan St. L. Pendred, C.B.E., Lt.-Col. E. Kitson Clark, T.D., M.A., Past President, Mr. Peel Fletcher, Brig.-Gen. Magnus Mowat, C.B.E., T.D., Secretary, Institution of Mechanical Engineers, Dr. R. P. Wagner, Deutsche Reichsbahn, Messrs. R. H. Whitelegg, J. R. Bazin, A. C. Carr, V.D., and H. Kelway-Bamber, M.V.O., Past-Presidents, Messrs. C. G. Du Cane, O.B.E., C. Kelway-Bamber, A. Devon, V.D., M.Sc., and F. S. Whalley, M.C.

Others present included: Messrs. E. Alcock, M.B.E., J. F. Alcock, M.A., J. W. Clubley Armstrong, C. Arnold, T. G. Atkinson, Major S. L. Baister, Messrs. F. J. Bance, J. H. Bance, C. B. Barratt, S. H. H. Barratt, T. Barty, W. J. Bassett-Lowke, B. W. Bates, J. E. Beckett, R. A. Beckett, A. R. Bell, Capt. G. S. Bellamy, Cdr. W. T. Bird, D.S.C., R.N. (retd.), Messrs. H. Bissell, R. C. Bond, A. F. Bound, H. Leslie Boyce, M.P., A. J. Boyd, O. V. S. Bulleid, J. E. Calverley, A. Campbell, H. R. Carver, J. Cave, H. Chambers, J. Clayton, M.B.E., J. Clements, Lt.-Col. C. E. Cockburn, Messrs. J. B. Corrie, J. D. Couper, C.B.E., H. P. R. Coveney, T. G. Creighton, Major W. H. Crosland, Messrs. Damer Dawson, F. Day, C. E. Dee, R. J. Drury, W. S. Edwards, C. E. Fairburn, M.A., Lt.-Col. C. J. Francis, C.B.E., Col. W. S. Fraser, C.I.E., O.B.E., V.D.

Mr. C. Bruce Gardner, Cdr. H. V. Gaud, R.N. (retd.), Messrs. H. E. Geer, F. Gibbins, P. Gibbs, Cdr. C. D. Gilbert, R.N.V.R., Messrs. R. K. Glascodine, D.S.O., M.C., R. T. Glascodine, C. N. Goodall, O.B.E., W. S. Graff-Baker, Lt.-Col. E. Graham, Messrs. A. J. Grant, J. H. Gresham, S. T. Gresham, W. H. Grieve, R. H. Hamilton-Wickes, Brig.-Gen. F. D. Hammond, C.B.E., D.S.O., R.E., Messrs. C. D. Hanna, F. Harper, Capt. G. H. Harrison, Major H. A. Harrison, Brig.-Gen. G. H. Harrison, C.M.G., D.S.O., Messrs. Ranald J. Harvey, C. A. F. Hastilow, M.Sc., C. G. Hatherley, O.B.E., N. B. Henderson, T. Hewitt, F. A. Hewson, F. J. Hills, C. W. C. Hine, F. F. Hixson, H. Holcroft, D. E. Holden, J. W. Holden, T. Hornbuckle, B.Sc., M.B.E., W. G. Hornett, W. R. Hornett, P. A. Hyde, A. C. Illston, M. Japiot, W. Jowett.

J. A. Kay, A. J. D. Kitson, L. Kitson, F. J. Kuretschka, C. S. Lake, J. Lancrenon, E. Lawton, L. J. Le Clair, H. W. Lee, R. H. Lee, J. D. Lewis, E. E. Lloyd, L. Lynes, Capt. O. Lyttleton, D.S.O., M.C., Major R. G. MacIver, V.D., Mr. W. G. P. Maclure, O.B.E., Brig.-Gen. Sir H. Osborne Mance, K.B.E., C.B., C.M.G., D.S.O., Col. L. Manton, D.S.O., O.B.E., Messrs. E. W. Marten, F. Mason, D. C. H. Mathews, Col. A. W. M. Mawby, O.B.E., T.D., Messrs. H. G. McClean, F. Melling, J. C. Metcalfe, R. D. Metcalfe, D. M. Moffatt, D. E. Mooney, A. E. Morgan, H. H. Morgan, H. J. S. Moyses, R. Needham, M.C., B. W. Palmer, C. R. Pasley, W. Paterson, I. K. F. Pearson, K. R. Pearson, G. Pettigrew-Smith, F. D. Playford, T. Potter, E. C. Poultney, O.B.E., F. E. Powell, A. L. C. Purr, J. Purves, J.P., V. P. Rawlings, H. P. Renwick, R. A. Riddles, L. W. R. Robertson, Capt. E. A. Robinson, M.C., Messrs. M. D. Robinson, G. Rollason.

C. Redford Salmon, Engr. Lt.-Cdr. J. G. B. Sams, R.N. (retd.), Messrs. O. A. F. Sandberg, O.B.E., T. H. Sanders, M.C., Messrs. F. Sedcole, E. W. Selby, G. H. Sheffield, C. K. D. Sidgwick, D.S.O., V.D., W. Gilmour Smith, H. Somerville Smith, D.S.O., M.C., J. E. Spear, J. C. Spencer, T. L. Squires, J. A. Stirling, K. P. Strohmenger, T. C. Swallow, A. F. Tabraham, V.D., Major E. W. Taylerson, Capt. F. Theakston, O.B.E., Messrs. J. H. Thom, R. A. Thom, O.B.E., W. B. Thompson, W. G. Tilling, Major C. Fullerton Tofts, Messrs. Julian S. Tritton, J. F. B. Vidal, M.C., Capt. Hugh Vivian, Capt. W. J. Wakley, Messrs. M. A. Walker, A. J. R. Walters, W. L. Watson, G. M. Wells, Major Bruce G. White, Messrs. S. T. Willcox, A. E. Williams, O.B.E., V.D., Major Charles E. Williams, C.B.E., Messrs. W. Cyril Williams, H. Wilmot, A. Gordon Wilson, Capt. R. G. Wilson, Messrs. J. Woodhead, J. B. Woodman, G. F. Young, S. J. Young, and H. Zetterström.

Lt.-Col. E. Kitson Clark, T.D., M.A., after the loyal toasts had been proposed by the President, proposed that of the guests and congratulated Sir Ralph Wedgwood and Mr. W. A. Stanier on their safe return from India. He welcomed among them that evening M. Lancrenon of the Nord Railway and M. Japiot of the P.L.M., and referred in French to the cordial relations existing between the engineers of France and this country. He mentioned also with pleasure the presence of Dr Wagner, a distinguished representative of the German railways. They very much regretted, he continued, the inability to be present of Sir William F. Gowers, K.C.M.G., Crown Agent for the Colonies, who presided over an organisation that probably designed more different kinds of locomotives than any other. Lt.-Col. Kitson Clark also mentioned by name a number of other distinguished guests.

Mr. R. Holland-Martin in an amusing speech suitably replied.

Sir Josiah Stamp, proposing the toast of "The Institution," said that he would have to give them one or two statistics, but not the kind usually associated with things being stretched end to end. After all, he pointed out, it was the job of the permanent way people to put things end to end, and when he once asked a permanent way man the kind of statistics he would use about locomotive engineers he rather sniffingly replied, "If you put all the locomotive engineers end to end, it would be a good thing!" Membership of the Institution of Locomotive Engineers, he continued, had now reached 1,660, part of that membership being abroad.

He then referred to the flourishing branches of the Institution in South America, in India and Western Australia, and mentioned that one was expected very soon in South Africa. The presence of so many distinguished guests, including Dr. Wagner, representing the Deutsche Reichsbahn, and others who had been mentioned, indicated that the institution was of international importance. He was glad to be able to couple the toast with the name of Mr. Stanier. So far as his knowledge of Mr. Stanier went, he was a vigorous transplant. It was felt that with the Swindon loam hanging around his roots, by transferring him to a larger pot and giving him a little more sand, he would flourish, and certainly flourish he had. They all admired his professional sense of technique and his instinctive grasp of a locomotive problem even when expressed by a layman, the readiness with which he would pick up and adapt the results of research and that æsthetic proportion which even a layman could see in his designs. Mr. Stanier's technique was associated with the great name of Churchward. In addition to all his qualifications, Mr. Stanier was a man greatly regarded and esteemed by all his colleagues in every department. They were very proud when Mr. Stanier went to India with Sir Ralph Wedgwood and others. They represented a perfectly appalling mass of intellectual power, continued Sir Josiah Stamp, and he associated their visit with the upset in the start of the new constitution in India. Sir Josiah Stamp referred to the fine achievements made in locomotive engineering during the last five or ten years and he thought Mr. Stanier would be the first to admit that in the colour light signal he had a very great ally in enabling his best locomotive performance to show itself.

Mr. W. A. Stanier, replying, said they were endeavouring to make the Institution of Locomotive Engineers an institution that could meet the needs of young locomotive and traction engineers all over the world. They endeavoured to encourage young engineers, particularly to learn to speak and to write papers. He had always tried in the later years of his life to encourage young engineers to take their part in institutions of this kind, and to get the necessary facility and ability to enter into the discussions and express themselves clearly. Sir Josiah Stamp had referred very kindly to his old chief, Mr. Churchward. Mr. Churchward perhaps made more progress in locomotive engineering than anyone else in his period. He had been an inspiration to a great many of them.

Mr. Stanier then presented the annual medals and prizes for the session 1935-6.

Mr. T. H. Sanders expressed the thanks of the gathering to the dinner committee, the council of the institution and the Secretary for their efforts in arranging such a successful gathering. Mr. J. Clayton responded on behalf of the dinner committee. A cabaret entertainment followed the speeches and was much enjoyed.

The seventy-ninth anniversary dinner of the Railway Benevolent Institution, at which Sir Josiah Stamp, Chairman of the L.M.S.R. and President of the institution, presided [Swaine Photo.]

Railway Benevolent Institution Annual Dinner

The Railway Benevolent Institution was favoured on Tuesday evening with a legal opinion on its activities for no more than the price of a meal. Or so Sir Josiah Stamp, Chairman of the L.M.S.R. and President of the institution, expressed it at the institution's seventy-ninth anniversary dinner, referring to the speech by the principal guest, Sir Donald B. Somervell, O.B.E., K.C., M.P., the Attorney General. The dinner, followed by a dance, was held at the Connaught Rooms, Great Queen Street, W.C.2, and Sir Josiah Stamp was in the chair. Ernest Rutherford's band played during the evening. Mr. John Lovering (baritone) sang, and Mr. Will Kings entertained. The following list of donations and subscriptions was announced:—

	£
His Majesty the King (annual subscription)	50
Collected by the President, the chief officers, and staff of the L.M.S.R....	5,026
Collected by the chief officers and staff of the following companies:—	
Great Southern Railways, Mr. P. J. Floyd	2,821
Great Western Railway Sir James Milne, K.C.V.O., C.S.I.	1,619
London & North Eastern Railway Sir Ralph L. Wedgwood, C.B., C.M.G.	1,587
Southern Railway Sir Herbert A. Walker, K.C.B.	725
Great Northern (Ireland) Railway Mr. J. B. Stephens	418
London Passenger Transport Board Mr. H. S. Chapman	225
Cheshire Lines Committee Mr. G. Leedam	166
Westinghouse Brake & Signal Co. Ltd. Mr. J. Griffith Hall	147
Railway Signal Co. Ltd. Mr. W. S. Roberts	35
Other collections	21
	12,840

Among those present were:—

Sir Alan G. Anderson, Mr. T. E. Argile, Messrs. E. Baker, W. A. Ballard, H. Barnden, F. Stanton Barnes, T. Barty, Capt. Guy V. Baxendale, Messrs. A. G. Beach, G. S. Bellamy, M. G. Bennett, R. L. Bentley, J. Boyd, R. R. Callingham, Raymond Carpmael, W. B. Carson, S. B. Carter, F. L. Castle, A. L. Castleman, Major W. H. Christie Clay, Sir George Courthope, Bt., Messrs. F. H. Cowell, C. H. Cowtan, F. S. Darby, Ashton Davies, W. J. Devenish, J. Doyle, John W. Dulanty, A. Durrant.

Messrs. C. E. Fairburn, P. J. Floyd, E. Fookes, Major G. Newton Ford, Messrs. E. T. Forster, H. H. Gardiner, Sir Thomas Gardiner, Messrs. S. L. Glenn, K. W. C. Grand, Sir W. Guy Granet, Messrs. R. Gresley, R. S. Griffiths, J. Guest, W. H. Hamlyn, C. A. F. Hastilow, F. R. Hauxwell, R. Holland-Martin, E. Huskisson, G. S. Hussey, W. H. Hyde, J. M. Irwin, T. W. Jacobs, C. Johnstone, Sir Francis Joseph, Messrs. J. A. Kay, J. King, A. E. Kirkus, C. H. S. Kirkus, A. J. D. Kitson, D. R. Lamb, Lt.-Col. E. ff. W. Lascelles, Messrs. W. E. C. Lazenby, L. J. Le Clair, Col. F. A. Cortez Leigh, Messrs. R. J. R. Loxdale, V. Loxdale.

Mr. H. Mack, Rt. Hon. James MacMahon, Mr. C. N. Mansfield, Lt.-Col. Lionel Manton, Messrs. J. Marchbank, K. C. Marrian, E. F. Marsh, A. L. McColl, John J. McDonald, James McLaren, Sir Patrick McMahon, Mr. C. F. Minett, Major C. H. Montgomery, Messrs. R. Falshaw Morkill, A. Morris, Arthur Morris, K. Leslie Mortimer, G. Morton, J. R. Morton, W. H. Morton, H. V. Mosley, A. Moss, G. Mottashaw, J. D. Mounsey, Lt.-Col. A. H. L. Mount, Mr. Maurice Nachshen, Sir Richard A. Needham, Messrs. C. H. Newton, C. H. Nicholson, J. H. Nicholson, J. O'Neill, F. J. Orchin, F. H. D. Page, E. E. Painter, S. E. Parkhouse, A. G. Pollard, F. R. Potter, R. A. Riddles, H. E. Roberts, W. S. Roberts, V. A. M. Robertson, W. H. Robins, A. P. Ross, T. H. Rowe, T. W. Royle, Lt.-Col. H. Rudgard.

Messrs. E. Savage, C. Sheath, H. A. Simons, Thos. Somerset, Sir Donald B. Somervell, Major M. S. Speir, Lt.-Col. K. R. N. Speir, Messrs. W. J. R. Squance, W. A. Stanier, Capt. C. M. Stephens, Messrs. J. B. Stephens, G. W. Stevens, W. J. Stevens, W. E. Still, W. Stott, C. H. Sutherland, Sandham J. Symes, E. Tenneson, H. Thompson, H. L. Thornhill, F. L. Timmins, F. W. Tipton, Sir George Wyatt Truscott, Bt., Messrs. R. B. Walker, W. K. Wallace, H. C. Walton, John Walton, J. W. Watkins, Major H. A. Watson, Messrs. W. C. Wayland-Carr, H. B. Webster, Sir Ralph L. Wedgwood, Mr. Francis Wigglesworth, Rt. Hon. Lord Wigram, Major T. Williams, Messrs. Alex. Wilson, H. C. Wintle, S. G. Wood, W. Wood, W. V. Wood, A. Woods, W. E. Yates, Alec Young.

The President having given the loyal toast, Sir Donald B. Somervell, O.B.E., K.C., M.P., the Attorney General, proposed "Success to the Railway Benevolent Institution," saying that he had the honour to be the Member of Parliament for the Crewe division of Cheshire. He was placed at the moment in great political temptation, for he had on his left the Chairman of the L.M.S.R. and he had to resist impressing on him what they all felt so strongly in Crewe, namely that it was there that the best locomotives in the world were made. When railways were new, trains had seemed to be a foreign incursion into the quiet of the countryside. However, anybody who had travelled as recently as himself on the *routes nationales* of France, and had heard the cars hooting, would realise that travel in a railway train was almost perfect tranquility. Risks were run daily by those who travelled on the roads, for which men in other fields would be awarded the V.C. He felt that travel by train was one of the quiet, contemplative factors in modern life, of which more advantage might be taken than was at present the case.

He thought that someone might compile a literary anthology of railway travel. Robert Louis Stevenson had written, "while the body is hurled forward in the flying train of carriages, the thoughts alight as the humour moves them at unfrequented stations." There was no tendency for ribbon development to take place along railway lines. Another author of whom he was very fond was Max Beerbohm, who had written an essay on his collection of luggage labels, and the devices he employed to ensure that a new acquisition should not be pasted on so as to obliterate an old friend. Kipling had spoken of the exhilaration of travelling by day, and the romance and self-importance of travelling by night.

That night they were gathered together to do honour to an institution which had to deal not so much with the romantic side of railways as with their casualties and hardships. It was one of the brightest of the railways'

traditions that they did their utmost to give adequate help to those who suffered in their service.

Sir Josiah Stamp, G.C.B., G.B.E., D.Sc., replying to the toast, said the institution must count itself fortunate in having as its chief guest not only a great lawyer and Member of Parliament, but, as they had seen, a great literary man and poet. He was especially pleased with the quotation from Stevenson, because the one they usually heard, from passengers glancing anxiously at their watches, was "it is better to travel hopefully than to arrive." He would point out, however, that there were people who counted it a very great privilege to live adjacent to a railway and regulate their lives by the punctuality of its trains.

As a lawyer, Sir Donald Somervell's opinion regarding the institution might have been got by writing him a letter, but he asked them to consider what that would have cost. So they were lucky to have got it for nothing more than the price of a dinner. Their institution was now celebrating its seventy-ninth anniversary, and it was no light thing to be responsible for an undertaking of such traditions and age. They had to see that it was still carrying on the purposes for which it was originally intended, and decide whether all its activities were still required. If they looked at the records of what the institution was doing today, they would see that however much life had changed socially, individually the kind of self-help and insurance provided by the institution were still wanted as much as ever.

The figures of donations and subscriptions represented an aggregate of individual effort. To particularise in one or two instances, they were deeply grateful to Mr. P. J. Floyd of the Great Southern Railways for his wonderful effort; and he would also mention the sum of £500 received from the Bekonscot Miniature Railway. Theirs was an institution that was still wanted, and they believed there was nothing of hardship within the circle of railway life but would receive attention.

Mr. W. J. R. Squance (General Secretary of the Associated Society of Locomotive Engineers and Firemen) proposed the health of the President. Sir Josiah Stamp's fame, he said, was world-wide, and his activities covered a very extensive field, so that the Government and other official bodies had conferred many honours upon him. The more he considered the scope of his achievements—in government, science, education, and commerce—the more he considered that the gentleman they were now honouring was a human plum-pudding of excellent and rare qualities. They could not overlook the great responsibilities of Sir Josiah's post on the L.M.S.R., which employed a staff of nearly 250,000.

Referring to the railway safety record, Mr. Squance remarked that in 1936 three passengers lost their lives in railway accidents, and there were 1,179,462,000 passenger journeys, so that the risk of death in train accidents to travellers was one in 393,000,000. He was convinced that under the guidance of Sir Josiah Stamp there was greater prosperity in store for the institution.

Sir Josiah Stamp replied briefly to the toast.

Locomotive Performance on the L.N.E.R.

A fitting counterpart to the remarkable L.M.S.R. 4-6-2 locomotive performance described in THE RAILWAY GAZETTE of February 5 is provided by a recent exploit of one of the L.N.E.R. streamlined Pacifics on the up Flying Scotsman. An outstanding feature of the run was the high speed maintained with a 15-coach train on level and slightly adverse grades, on no more than 15 per cent. cut-off. From Newcastle to Darlington is not a favourable stretch for fast running, but the schedule time of 49 min. for the 36 miles was kept in spite of a severe slack due to a colliery pitfall near Plawsworth, and two signal delays. From the second of the latter, near Ferryhill, the engine recovered rapidly to 69 m.p.h. near Bradbury, and for some distance beyond the latter station was working at only 10 per cent. cut-off.

Between Darlington and Grantham came the splendid running tabulated below, the merit of which was enhanced by the bad weather conditions; for a snowstorm, often rising to blizzard intensity, was raging.

After mounting the 1 in 391 to Eryholme junction at a steady 57½ m.p.h., the engine, working on 15 per cent. cut-off, ran very freely over the faintly falling and level grades to York; 80 m.p.h. was reached at Thirsk, and an average of 76·5 maintained over the 16·9 miles from Otterington to Tollerton. South of York, speed rose to 74 m.p.h. on the level near Shaftholme, again on 15 per cent., and after the slight easing through Doncaster no longer cut-off was needed to mount the 2¼ miles at 1 in 198 leading to mile post 149½, and the 3½ miles at 1 in 178-200 up to Markham box at minimum speeds of 61½ and 55½ m.p.h. respectively. The recovery from the p.w. check near Newark, which cut short a maximum of 85 m.p.h., was good up substantially rising grades. The final run, from Grantham to King's Cross, 105·5 miles scheduled in 107 min., was marked by a very swift descent from Stoke summit, wherein the 10·3 miles from Little Bytham to Helpston box were covered at an average speed of 84·6 m.p.h., with a maximum of 91 m.p.h. near Essendine. South of Peterborough the weather conditions with patches of fog added to the sleet and rain grew so bad as to prevent anything more than bare timekeeping, though even so the 58·7 miles from Peterborough to Hatfield were covered in 57 min. 49 sec., again working almost entirely on 15 per cent. cut-off. Altogether there was a net gain of 12½ min. by locomotive on the complete run from Newcastle to London, giving an aggregate net running time of 274½ min. for the 268-mile journey.

L.N.E.R. THE FLYING SCOTSMAN
Load: 15 cars; 483 tons tare, 515 tons full.
Engine: Streamlined 4-6-2, No. 2510 *Quicksilver*.
Driver: Peachey; Fireman: Hart.
(King's Cross Shed.)

Miles		Schedule	Actual	Speeds
		min.	min. sec.	m.p.h.
0·0	DARLINGTON	0	0 00	—
5·2	*Eryholme*	7½	7 19	57½
14·1	Northallerton	17	15 19	72½ 69
21·9	Thirsk	25	21 34	80
28·0	Pilmoor	—	26 25	75
32·9	Alne	34	30 20	78
			p.w.s.	40
38·6	Beningbrough	—	35 44	62½*
44·1	YORK	45	43 12	
0·0		0	0 00	
7·1	Escrick	—	9 38	71*
13·8	SELBY	16½	16 23	25†
20·9	Heck	—	24 22	65
28·0	*Shaftholme Jc.*	—	30 28	74
			eased	
32·2	DONCASTER	35	34 30	58/69
38·7	*Mile-post* 149½	—	40 36	61½
44·3	Ranskill	—	45 18	76½
49·6	RETFORD	51½	49 47	69
54·5	*Markham*	—	54 35	55½
60·8	Crow Park	—	59 52	85
			p.w.s.	27
68·1	NEWARK	69½	66 49	—
72·8	Claypole	—	72 27	60
78·5	Barkston	—	78 30	51½‡
82·7	GRANTHAM	86	83 55	—

Net times: 41½ minutes, Darlington-York.
81 minutes York-Grantham
* Maximum. † Slack. ‡ Minimum.

GREAT WESTERN RAILWAY—PIONEER IN INDUSTRIAL FIRST AID.—In the course of a broadcast talk in the National programme on March 19, Captain White Knox, speaking of the desirability of members of the public acquiring first aid knowledge, referred to the fact that as long ago as April, 1878, an ambulance class was held at Paddington station composed of Great Western Railway employees. It is interesting to recall that this pioneer class had a membership of 40; the instructor was Mr. Manders, of St. Mary's Hospital. Since that date no fewer than 144,750 Great Western railwaymen have passed first aid examinations, the highest record achieved by any centre of the St. John Ambulance Association. This lead was soon followed by the other railways, and upwards of 450,000 railwaymen have gained their first aid training under their respective centres. The movement was also speedily extended to other branches of industry, mines, etc., and to the police force. Interest in the movement has been consistently fostered by the railway companies, and the more spectacular side of the work, the annual competitions, provides a stimulus to the staff in maintaining its knowledge. At the inter-railway competition, which will take place this month, representatives of the railway companies will contest possession of the Inter-Railway Ambulance Shield, provided by the Order of St. John.

New German Railway Bridges

(*See editorial note on page* 690)

On March 18, Dr. Ing. Schaper, of the German State Railway, read a paper entitled "New German Railway Bridges" before a joint meeting of the Institution of Civil Engineers, and the Institution of Structural Engineers, at the premises of the former. Dr. Schaper expressed his pleasure at being invited to lecture in England, which he considered to be the classic country of bridges, chiefly because of its great pioneer work in the subject starting with the first iron bridge in the world, erected at Coalbrookdale over the Severn in 1776-1779. He also referred to the beauty of the severe but noble shape of Robert Stephenson's Britannia bridge over the Menai Straits, and expressed his wonder at the audacity of the Forth Bridge, completed in 1890.

In Germany, in more recent years, much attention and research had been given to new materials and methods of construction, and at the same time endeavours had been made to produce structures as æsthetic as possible. Owing to the great increase in axle loads, a higher tensile alloy steel, known as St. 52, had been used in many cases instead of the usual mild steel, St. 37. The result was lighter construction, and often more pleasing appearance.

The specification for the St. 52 steel required a tensile strength of 33-40·5 tons per sq. in., a yield point of 22·2 tons per sq. in. and an elongation of 19 per cent. in the direction of rolling and 17 per cent. at right angles to it, all varying slightly according to the rolling thickness. The stresses were generally about 50 per cent. higher than those for the St. 37 steel.

An important property of this steel is that although its fatigue strength, obtained by a purely cyclic load with no addition of a constant stress, is not appreciably greater than that for the St. 37 steel, the amplitude of oscillation does not diminish much when a superimposed load is also added. This fact is carefully considered in choosing the material to be used in any projected work. For road bridges, since the design loads are seldom if ever attained, the dead loads produce a high permanent stress varied by a smaller cyclical variation, and, therefore, the alloy steel can be usefully used. In railway bridges the conditions vary. The loading is more definite, and for small bridges the greater part of the stress is due to the live load, in which case the mild steel can be used to advantage. In longer spans, St. 52 is used, as naturally the dead load stress is relatively higher.

These considerations have been based on economy of material only, but when the higher price of the alloy steel is taken into account, it is found that road or rail bridges of short spans should be constructed of mild steel. For long spans, the new material has reduced the cost by as much as 15 per cent. In order that St. 52 steel shall not crack or harden when subjected to welding, the percentages of carbon, silicon, manganese and copper are strictly controlled.

Solid web, rigid frame bridges of the portal type are being used, and plate girders have been built up to 360 ft. long for road bridges, and 175 ft. for railway bridges, chiefly because of their superiority over lattice girders from the points of view of maintenance and appearance. Where several spans are required, the German principles are that in order to produce as pleasing an effect as possible, the spans should be placed with the largest in the middle, progressively decreasing on both sides; parallel flanged girders should be used, and in cases where the depths of consecutive girders decrease, the change in section should be eased by "communicating diagonals" between the top flanges. The structures are always designed to be in keeping with the surroundings, and to be as simple in appearance as possible. A new type of truss has been tried successfully. It consists of single top chords, with two bottom chords side by side. The advantages claimed are increased resistance to torsion, economy in large spans, and the abolition of the necessity for overhead wind bracing.

After thorough research and tests had been carried out, the first totally welded bridge was erected in 1930, having a span of about 33 ft. Bare wire electrodes were used. The structure, after carrying heavy traffic for 6 years, has been dismantled for research and will be examined by X-rays. Since 1930, extensive fatigue tests have been carried out on welded details, with the object of introducing improvements in later designs. There are now 150 welded bridges up to 175-ft. span on the German State Railway, and many more up to 340-ft. span on State motor roads. As satisfactory joints have not been obtained for truss girders carrying railways, this type of construction has been used for roads only, as the live load is usually but a small fraction of the dead load.

It is realised that shrinkage stresses in places may amount to as much as 12 tons per sq. in., but tests have shown that these are not important as they are purely local and are part of the system of equilibrium in the material itself; therefore, live or dead load stresses are not superimposed on them. Endurance tests have shown welded girders superior to those that are riveted. The internal stresses are no more serious than ordinary rolling stresses. As far as constructional details are concerned, it has been found that the most satisfactory joint between the flange and web of a plate girder is the plain double V or U butt seam without additional straps. Butt joints in the flanges should be at 45 deg. to the longitudinal axis. The order in which the different parts of the structure are erected by welding must always receive careful consideration. Both on the site and in the shop, overhead welding should be avoided as much as possible.

The author considers that the chief justifications for the use of welding are: (1) There is a saving in weight, chiefly because the loss of section due to rivet holes in tension members is avoided and connecting cleats and angles are eliminated. The saving in weight can be as much as 23 per cent.; (2) for road bridges, concrete decking can rest more satisfactorily on the smooth surfaces of flanges, and the necessity for breaking up the floor for replacing loose rivets, should any develop, is avoided; (3) heavily loaded frames, portals and stanchions are in some cases more easily welded; (4) the appearance of a welded structure is more pleasing; and (5) skew connections are simpler.

Dr. Schaper illustrated his points with many excellent slides, and fully substantiated his statements about the æsthetics of bridge design.

Staff and Labour Matters

Holidays with Pay

The committee appointed by the Minister of Labour, to investigate holidays with pay, will hold its first sitting—in private—on Monday.

Road Transport Wages

It is understood that towards the end of the present month will be issued the report of the committee appointed by the Ministers of Labour and Transport to examine the question of the rates of pay and conditions of employment in road goods transport.

Railway Wage Claims

Writing in the current issue of the *Railway Service Journal*—the official organ of the Railway Clerks' Association—the General Secretary, Mr. W. Stott, gives a hint as to the claims which the association will make to the railway companies. He says ". . . the executives of the three railway trade unions have decided to ask that the 1¼ per cent. cut in all earnings shall cease, and the executives of the Associated Society of Locomotive Engineers & Firemen and the National Union of Railwaymen will ask that the rates for overtime, night duty, and Sunday duty shall be restored. Moreover, each of the three unions will submit a short programme of other items, but at the time of writing I can only say that stagnation will certainly be one of the other Railway Clerks' Association claims, though we may also ask that something should be done about hours of duty, night duty and time off in lieu of Bank Holiday." It would seem that presentation of the union claims will not now be long delayed.

RAILWAY AND OTHER MEETINGS

Associated Electrical Industries Limited

The annual general meeting of Associated Electrical Industries Limited was held at Bush House, Aldwych, W.C.2, on April 2, Sir Felix J. C. Pole, Chairman of the company, presiding.

The Secretary (Mr. R. H. Haviland) read the notice convening the meeting and the auditors' report.

The Chairman said he would preface his remarks by referring to the sad loss which the electrical industry had sustained by the death the previous day of Sir John Brooke, Deputy Chairman of the Electricity Commission. He knew Sir John Brooke personally for a long time; first as Secretary to the Ministry of Transport, later as Secretary to the Central Electricity Board, and in his final position as Deputy Chairman of the Electricity Commission. He was a man of great charm, ability, and dynamic force, and they deeply deplored his early death. To Lady Brooke he was sure they would wish him to extend their deepest sympathy.

Proceeding to move the adoption of the report and accounts, the Chairman pointed out that the authorised capital had been increased by £100,000 8 per cent. cumulative preference shares. This was authorised at an extraordinary general meeting held on August 11 last to enable the company to acquire the whole of the outstanding preference and ordinary shares of the Edison Swan Electric Company in pursuance of the policy of financial consolidation of the companies of the A.E.I. group. In order to effect this consolidation, an offer was made to all the outstanding Edison Swan shareholders to exchange one £1 8 per cent. cumulative preference share of the A.E.I. company for one £1 7½ per cent. cumulative preference share in the Edison Swan Electric Co. Ltd., and to exchange three £1 ordinary shares of the A.E.I. company for five 4s. ordinary shares of the Edison Swan Company. Over 99 per cent. of the outstanding preference shares, and over 91 per cent. of the outstanding ordinary shares were exchanged. The few remaining shares were acquired under the powers conferred by Section 155 of the Companies Act. This had involved the issue of 74,592 preference and 23,378 ordinary shares. Most of these shares were converted into stock by a resolution passed at an extraordinary general meeting held on October 12 last, and at a later stage he would ask them to pass a resolution to deal similarly with the few outstanding shares shown in the balance sheet.

The profit and loss account showed depreciation at £149,574, compared with £91,832—an increase of £57,742. This depreciation referred to the assets of the Metropolitan-Vickers Electrical Company only. The total amount of depreciation provided in 1936 by all their companies was £448,040. As he had pointed out in previous years, the directors considered that it was of the utmost importance to maintain depreciation allowances on a high level.

As usual, there was included in the accounts a consolidated balance sheet which was designed to show the position of the associated group of companies if regarded as a single unit from a financial point of view. This statement was of considerable importance to the stockholders having regard to the very small amount of ordinary shares now held outside the group. He would draw particular attention to the reserves, both capital and general. These two accounts amounted in total to £2,470,723, and were equal to rather more than 50 per cent. of the ordinary capital of the group, which indicated their very strong position and their ability to provide for increased business.

The profit made during the year, including dividends from subsidiary companies, amounted to £1,055,624, an increase of £227,105. After deducting depreciation and income tax, there remained a balance of £638,476, to which must be added £165,405, the amount brought forward from last year, making the total profit available for distribution £803,881. From this there had been appropriated £100,000 to general reserve, bringing that fund to £1,000,000, and £75,000 to writing off completely the item Patents and Goodwill. After providing for the preference dividend £77,473, there remained £551,408, and the directors recommended payment of a dividend on the ordinary stock at the rate of 10 per cent. per annum less income tax, leaving a balance to be carried forward of £176,118, an increase of £10,713.

Orders received during 1936, as well as orders in hand at December 31, showed a substantial increase over those for 1935. As an indication of the fact that they had completely emerged from the slump conditions of a few years ago, they would be interested to know that whereas the number of employees in all their companies fell to about 22,000, the latest total for the group was 37,838. It would naturally be asked how long the present state of affairs would continue. He hesitated to answer, beyond saying that they had every reason to anticipate good trade for at least another year or two. He hoped that the Government would not upset the balance of industry in its desire to help so-called depressed areas. Speaking for the electrical industry, he could say positively that productive capacity was ample and that unregulated additions thereto would be calculated to create future difficulties.

After expressing his thanks to the company's officers, staff, and employees, whose faithful service should assure the company's success, the Chairman reviewed work in progress or completed during the year. In Poland, the Warsaw Junction electrification scheme, for which they were joint main contractors, was nearing completion, and traffic on the electrified lines was started in December. At the official opening, the Polish authorities referred in most complimentary terms to the company's staff and to the excellence of their work. Relations with the Polish Government were excellent and their business in Poland was expanding.

In Brazil, the electrification of portions of the suburban lines of the Central Railway was progressing satisfactorily, and the first trains had undergone satisfactory running tests. They hoped this year to comply with the desire of the Brazilian Government to expedite the commencement of the second portion of this large and extremely important work, and they were most anxious again to have the valued backing of the Export Credits Department of the Board of Trade.

The Fulham power station, for which the company supplied the Fulham Corporation with two 60,000-kW. turbo-alternator sets, switchgear, transformers, &c., was officially opened during the year. Of apparatus in process of manufacture and erection, special mention should be made of a 50,000-kW. set operating at a steam pressure of 1,950 lb. for the Brimsdown power station of the North Metropolitan Electric Supply Company. The year was notable for the number of large turbo-alternator sets for which orders were received both at home and from overseas: also for orders for large electric winder equipments for use in the mines of South Africa and India.

He referred last year to the two additional 33,000-kW. sets ordered by the Victoria Falls & Transvaal Power Co. Ltd. In 1936 a further two were put in hand, while since the beginning of the year they had received orders for four similar sets, making 12 in all ordered by that important concern. These were for the Klip River station, which was equipped entirely with the company's generating plant.

At previous meetings he had mentioned the system of regenerative control known as the Metadyne, developed by the Metropolitan-Vickers Company, which he said would have an important influence on railway electrification schemes. He could now tell them that an order for 52 Metadyne equipments was received from the London Passenger Transport Board.

Much of the plant for which orders had been received was to meet the growing demand on stations of the Grid system. There was still much to be done to improve the lighting of factories, railway stations and yards, and, in the interest of saving life, the lighting throughout their length of all arterial roads, for which they had de-

veloped some extremely efficient lamps. The use of trolleybuses and electric battery vehicles was increasing rapidly, and electrification of railways was progressing, all the main line companies now having schemes in contemplation. Then there was bound to be increasing use of current for agricultural, horticultural, and many other purposes: in fact they had a long way to go before approaching the saturation point.

At the same time, the company's policy was to develop export business, although in this their task was not easy by reason of the way in which some foreign competitors benefited from depreciated exchanges, or enjoyed the assistance of their governments. But by producing products which were second to none in quality and performance, by maintaining an efficient staff overseas, and by personal contact, the company endeavoured to secure its share of the export market. In connection with the British re-armament programme, the company had undertaken important munitions contracts, and had placed research facilities at the disposal of the Government. Both the British Thomson-Houston and the Metropolitan-Vickers companies spent large sums on research, and their scientific and engineering staff was of the highest order.

Before putting the resolution to the meeting the Chairman invited questions, and in the course of his replies stated that payment at the Coronation holiday of wages to employees not normally having holidays with pay would involve a sum not less than £10,000; also, that the company was installing Coronation floodlighting in large towns all over the country.

The report and accounts, with a dividend for the year ended December 31, 1936, of 10 per cent. less income tax, were unanimously adopted.

The Chairman then moved that, pursuant to Clause 49 of the articles of association of the company, all of the ordinary shares and preference shares of the company issued as at the date thereof as fully paid up but not converted into stock, should be converted into stock forthwith, and that the directors should be and were thereby authorised and requested to take all necessary steps for carrying out such conversion.

This resolution was unanimously carried.

L.N.E.R. Musical Society Dinner and Dance—Mr. Percy Syder, London City Manager, L.N.E.R., presided on April 2 at the close-of-season dinner and dance of the L.N.E.R. Musical Society in the Liverpool Street Hotel. The guests were received by Mr. and Mrs. Syder, and Mr. Arthur Burton occupied the vice-chair. Replying to the toast of "The Chairman," proposed by Mr. Burton, Mr. Syder gratefully acknowledged the support given to the society by the chairman and directors of the company, Mr. William Whitelaw, their President, taking a keen personal interest in their activities.

RAILWAY AND OTHER REPORTS

Buenos Ayres Great Southern Railway.—The board announces that the question of the payment of dividends upon the preference stocks of the company will be considered when the accounts for the year ending June 30, 1937, are completed.

Buenos Ayres Western Railway.—It is announced by the directors that the question of the payment of dividends upon the preference stocks of the company will be considered when the accounts for the year ending June 30, 1937, are completed.

Peruvian Corporation Limited.—With the sanction of the debenture holders' committee the Corporation paid on April 1 interest on the first mortgage debentures at the rate of 2 per cent. in full discharge of balance coupon No. 88 representing the unpaid portion of the instalment of the interest due on April 1, 1934. Last October an interest payment of 4 per cent. was made on these debentures.

Bolivia Railway.—Net earnings for the half-year ended December 31, 1936, are sufficient to pay interest of 0·563 per cent. on the 5 per cent. mortgage and collateral trust income bonds. The balance required to enable interest of 1½ per cent. (6s. per £20 bond) to be paid on the bonds in respect of the half-year has been provided by the Antofagasta Railway Company. Out of the net earnings a sum equivalent to 0·665 per cent., together with 0·053 per cent. brought in, making 0·718 per cent., is now available for distribution further on account of the liability of the company to holders of the old first mortgage bonds who have not accepted the plan of reorganisation. An actual distribution will be made at the rate of 0·625 per cent. (2s. 6d. per £20 bond), the balance being carried forward.

G. D. Peters & Co. Ltd.—The report for 1936 shows a net trading profit, after charging all expenses, directors' fees, etc., of £21,912, against £2,162 for 1935. The profit is to be transferred to reorganisation account, which is reduced to £254,715. Nothing has been included in the accounts in respect of profits of subsidiary companies; no subsidiary made a loss last year. The principal departments of the company have been well supplied with orders, enabling the company to obtain an increased output.

British Timken Limited.—Net profit for 1936, after charging depreciation, was £111,824, against £61,122 for 1935. Appropriations are made to taxation reserve £28,000 (against £13,500), and to general reserve £50,000 (against £25,000), leaving £33,824 plus £20,652 brought in. The dividend on the ordinary stock is raised from 10 per cent. to 15 per cent., and takes £28,594, against £19,375, leaving £25,882 to be carried forward. The directors have decided to recommend the capitalisation of £50,000 from general reserve to be applied in payment in full for 50,000 shares, which will be issued in the proportion of one new share to every five shares held.

Stewarts and Lloyds Limited.—A dividend is announced on the deferred stock at the rate of 7½ per cent. for the year 1936, against 5 per cent. for 1935. A payment will be made on the liaison deferred shares at the same rate relatively as on the deferred stock.

Forthcoming Events

Apr. 9 (*Fri.*).—Institute of Transport (Newcastle), at Royal Station Hotel, 7.30 p.m. Annual General Meeting.
Institute of Transport (Newcastle Graduate), at Royal Station Hotel, 6 p.m. Annual General Meeting.
Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 6 p.m. Symposium of Papers on Special Aspects of the Use of Steam for Process Work.
Apr. 10 (*Sat.*).—Permanent Way Institution (Birmingham). "Modern Signalling in Relation to the Permanent Way," by Mr. O. S. Nock.
Permanent Way Institution (Manchester-Liverpool). Visit to Leyland Motor Works.
Apr. 12 (*Mon.*).—Engineers' German Circle, at Inst. of Mechanical Engineers, Storey's Gate, London, S.W.1, 6 p.m. "The Electrification of the Tirol Alps Railways," by Herr Oberbaurat Ing. R. Wolf.
Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 5.30 p.m. "Recent Developments in Ocean Transport," by Sir Thomas Royden.
Stephenson Locomotive Society (London), at L.N.E.R. Dining Club, King's Cross Station, N.1, 6.30 p.m. Discussion.
Apr. 13 (*Tues.*).—Federation of British Industries, at Grosvenor House, Park Lane, London, W.1. Annual Dinner.
Institute of Transport (Birmingham), at Queen's Hotel, 6 p.m. Annual General Meeting.
Apr. 14 (*Wed.*).—Diesel Engine Users' Association, at Caxton Hall, Caxton Street, London, S.W.1, 4.45 p.m. Informal Discussion on Draft Bulletin dealing with the Development of the Diesel Engine in all its Aspects during 1936.
Institute of Transport (Manchester-Liverpool Graduate), at Central Library, Manchester, 6.30 p.m. "Railway Signalling from the end of the Nineteenth Century," by Mr. J. Boustead.
Institution of Railway Signal Engineers. Visit to Signal Shops, L.N.E.R., York. "Training of Maintenance Staff," by Mr. J. Fraser, at Signalling School, 6 p.m.
Permanent Way Institution (London), at Underground Railways' Dining Club, Pelham Street, S.W.7, 7 p.m. "Welded Rail Joints," by Mr. T. Somerville.
Royal Society of Arts, John Street, London, W.C.2, 8.15 p.m. "The Present Position and Prospects of the Coal Industry," by Capt. J. Dickie.
Apr. 15 (*Thurs.*).—Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "The Boulder Dam," by Mr. J. Savage.
Apr. 16 (*Fri.*).—Institute of Transport (East Midlands), at Guildhall, Nottingham, 7 p.m. Debate: "Would the Transport System of this Country benefit by Unification of Control?"
Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 6.30 p.m. "The Wear of Cylinder Liners," by Mr. J. Hurst.
L.M.S.R. Final Ambulance Competition, at Winter Gardens, Blackpool, 9.30 a.m.
Apr. 19-24.—International Association for Testing Materials Congress, in London.
Apr. 20 (*Tues.*).—Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 6 p.m. "Transport Developments in 1936," by Mr. R. Bell.

XUM

Fatal Collision near Battersea Park Station: Southern Railway

(*See editorial note on page* 689)

The immunity from serious accident which the Southern Railway has enjoyed with its electric services was marred by one of the worst accidents which has occurred in London for many years, when, at about 8.3 a.m. on Friday, April 2, the 7.31 a.m. electric train from Coulsdon North to Victoria ran into the rear of the 7.30 a.m. from London Bridge to Victoria via Tulse Hill, which was standing at the up local line home signal for Battersea Park station. This is on a gantry, which also carries the down advanced starting signals for the main and local lines, not far south of the station platforms at the end of the bridge which carries the main Victoria—Brighton line over the Western section lines from Waterloo. The rear of the standing train was on the next bridge, over the goods lines leading to Stewart's Lane sidings, the approach to which is on a viaduct. The lines from Clapham Junction are on a 25-chain left-hand curve and a 1 in 120 rising gradient at this point. The signals at Battersea Park are semaphores operated by electric motors, the signal box being of the electro-mechanical type, a system in use from that station into the Victoria (Central section) station and installed about 30 years ago. Their working is controlled by Sykes' lock-and-block system, in general use on the Southern lines round London where semaphore signalling is still in force. The next signal box in the rear is Pouparts Junction, where the Stewarts Lane lines diverge; this is of the ordinary mechanical type. The up advanced starting signals have the distant signals for Battersea Park, motor operated, beneath them. Automatic train stops are not used by the Southern Railway.

The Coulsdon train struck the other with considerable force, its front motor coach mounting the rear motor coach of the standing train almost completely wrecking it and afterwards turning over on its side across the down local line, but there was little damage to the remaining vehicles. A short circuit resulted and the current was automatically cut off, as a result of which, aided by hand signals, a down main line train was stopped in time. Fortunately nothing was approaching on the down local line. The coach bodies were of the older wooden type, which accounts for the destructive telescoping which occurred but probably prevented any being flung off the viaduct. Ten persons, of whom two died in hospital, lost their lives, and several others were injured sufficiently to be detained in hospital. The driver of the colliding train had a remarkable escape, receiving comparatively light injuries which, however, necessitated his going to hospital for a time.

The Southern Railway issued the following official statement in the evening:—

The Southern Railway greatly regret to announce that, owing to an accident at 8.5 a.m. this morning between Battersea Park and Clapham Junction Stations, seven persons lost their lives and 14 others were detained in hospital with injuries. [Three others died after this statement was issued.]

The accident was caused by the 7.31 a.m. electric train from Coulsdon North to Victoria running into the rear of the 7.30 a.m. electric train from London Bridge to Victoria (via Tulse Hill).

As a result of the accident all four running lines were blocked, and trains had to be terminated short of the accident. In consequence of the collision a short circuit occurred, with the result that the current was cut off automatically; the momentary flash which always occurs in such circumstances may have been mistaken for fire, but in fact no fire of any sort took place.

Normal working on all lines was resumed at about 5.30 p.m.

An official inquiry is being held into the cause of the accident.

The Southern Railway wish to express their sincere sympathy with all those involved in this unfortunate accident, and tender their gratitude to the police, ambulance workers, fire brigade, and hospitals for the assistance that was forthcoming in such a remarkably short time.

The awkward nature of the location made the work of extricating the passengers from the wreckage, removing the debris, and clearing the line, a task of more than usual difficulty, and heavy rain was falling for a great part of the time. Fire escapes and ladders were used to reach the scene of the accident.

All traffic to and from Victoria, Central section, was suspended. The Newhaven—Dieppe boat train was started from the Eastern section and sent via Herne Hill, Tulse Hill, and Streatham, reaching the main line at Streatham Common. One happy aspect of this otherwise deplorable occasion was the very smart manner in which the main line rush-hour traffic to Victoria was promptly diverted to London Bridge, thus occasioning a minimum of delay to passengers. In fact all main-line electric services which normally run to and from Victoria were diverted to London Bridge between 8.20 a.m. and 4.45 p.m. Steam services to Victoria were similarly diverted up to 11.0 a.m., when arrangements were made to run them via Pouparts Junction and Stewart's Lane, a non-electrified route normally used for goods services only. Suburban services terminated at Clapham Junction, Balham, and Streatham Hill, but some were diverted to London Bridge. Services between London Bridge and Victoria via the South London line were entirely suspended from 8.0 a.m. to 10.0 a.m., when the service was resumed. The following figures indicate how little delay was suffered by the more important coast trains.

	Train from		Due at Victoria	Arrived London Bridge
7.40.	Brighton	...	8.46	8.56
8.5.	,, ...	...	9.5	9.18
7.55.	Worthing	...	9.18	9.28
7.48.	Bognor ...	...	9.33	9.51
8.35.	Brighton	...	9.42	9.58
9.35.	,,	...	10.35	10.45

The same standard of working was also maintained by the semi-fast and slow main-line trains. Seeing that all the dense normal traffic had also to be worked into London Bridge during these rush hours, this comparatively slight delay is particularly remarkable. In the evening we found the 5.41 p.m. electric train from Victoria left punctually and arrived at Three Bridges to the minute. Such excellent achievements reflect great credit on the breakdown staff who, by 4.45 p.m., had cleared all tracks, and at 6.0 p.m. notices were posted announcing the resumption of normal services from Victoria.

The inquest was opened on April 6 before the Battersea Coroner, Dr. Edwin Smith and, after evidence of identification had been given, was adjourned until April 20. Mr. William Bishop, Solicitor of the Southern Rail- who represented the company, expressed on behalf of the chairman, the directors, and the general manager their sincere sympathy with the relatives and friends of those who had been killed and their sympathy with those who were still suffering from their injuries. He also paid a tribute to all those who had rendered assistance so promptly after the accident. "The cause of the accident," he added, "is still under investigation, and therefore it is impossible to make any statement as to what the company's position will be and what will be their attitude in the matter. At the moment I think the cause of the accident is a little bit wrapped in mystery. We have not got to the bottom of it, but that, of course, will be reached in due course."

The Coroner remarked on the generally high level of safety of railway travel saying that "the immunity of the railways from this sort of accident, if we can preserve a sense of proportion, is really remarkable."

Lt.-Col. Mount, opening the official Ministry of Transport inquiry at the Charing Cross Hotel on April 7, pointed out that it was being held primarily from the technical aspect of the case in order that the Minister might be advised of the cause of the accident and of any measures which it might be considered desirable to adopt in the interests of public safety to prevent a recurrence. "I need hardly add," he said, "that I know the company are just as anxious to take any necessary precautionary measures when the cause of the accident and all the circumstances have been sifted."

"I want to make it clear that this

is therefore in no way a court for the determination of legal responsibility of any kind. I must therefore consider whether, if I hear in public the statements of some or all of the men who may be concerned, it would be likely to prejudice them from that point of view.

" Moreover, just as important an object of hearing the whole or part of the evidence in private is to obtain the frankest statements possible from those concerned without their feeling apprehensive that they might be prejudiced thereby in any enquiry which might result in legal proceedings.

" I think this is particularly important in this case owing to the complicated technical considerations affecting the signalling system in this accident."

Mr. H. E. O. Wheeler, Superintendent of Operation, Southern Railway, made a general statement concerning the accident. Both trains, he said, consisted of eight cars, and were conveying between 350 and 400 passengers altogether. The collision occurred at a point about half a mile from Pouparts Junction Box and about 574 yd. from Battersea Park box.

Mr. J. Clayton, Assistant to the Chief Mechanical Engineer, said that only the rear coach of the standing train suffered. The wheels all held to the road but the body was partially telescoped. The last two compartments at the London end remained intact. The platform of the coach was swept clean away by the over-riding coach of the following train. The rear portion of the underframe and buffers were buckled downwards. The over-riding coach—the leading coach of the following train—fell over on its side. The first two compartments in the rear of the motorman's cab were smashed.

Mr. Lynes, of the Rolling Stock Department, said that the body of each coach was of timber construction throughout except for the driving and guard's compartments, which were steel panelled. The framing was hard wood with timber panelling.

Colonel Mount: " Am I right in saying that there was not a window broken in the second coach of the following train? "

Mr. Lynes: " No windows were broken in the trailer coach of the moving train."

Mr. Clayton (interposing): " It is significant that none of the wheels of any of the vehicles was derailed. One was slightly lifted."

Mr. Clayton said that the shock of the collision was taken by the rear coach and the leading coach overriding, and that was how the momentum was absorbed. Asked if he had formed any impression of the speed of the moving train, Mr. Clayton said that from the amount of damage, and considering it was wooden stock which absorbed shock almost like springs, the speed would be about 30 to 35 m.p.h.

Colonel Mount asked what might have been the effect if the coaches had been of steel, and Mr. Clayton replied: " This accident would have been much extended. It is more than likely that rigid steel stock would not have given as these two coaches did, and there might have been a good deal of derailment and a coach might have gone over the parapet."

Lt.-Col. Hall, Signal and Telegraph Engineer, gave a detailed description of the signalling system at Battersea Park, adding that the system had worked entirely satisfactorily and had been unusually free from minor failures.

Colonel Mount: " I presume that tests were made immediately after the accident? "

Colonel Hall: " Yes, both by examination and by electrical tests. They were all quite satisfactory."

Colonel Mount: " There was no failure here of the signalling system as such? "

Colonel Hall: " No."

Colonel Mount: " The word ' sabotage ' was referred to in the press. I take it that was the last thing that happened here? "

Colonel Hall: " There is not the slightest suggestion of anything of the kind."

Replying to Mr. J. Benstead (N.U.R.) Colonel Hall said that the signalman at Battersea Park box would have 972 movements to make in the course of the peak hour. Colonel Hall stated that tests of the apparatus were made after the accident.

After evidence had been given concerning the exact time of the collision, the guard of the colliding train, Robert William Adamson, speaking of the journey which ended in the collision, said that the visibility after they had left Clapham Junction was " not too good."

Colonel Mount: " You had no difficulty in observing the signals?"

Adamson: " There was a natural blinking of the eyes with the beating of the rain, but otherwise I saw them all right. There was a little difficulty, but not much." He added that the train was half a minute late at Clapham Junction. The signals were " off."

Colonel Mount: " There is no question that these signals were lowered as you approached them. When you first saw them they were clear?"

Adamson: " Yes! When I first saw them they were clear."

Colonel Mount: " You did not see the standing train?"

Adamson: " No, I did not see it at all. If you have got the road you would not look for it." Adamson added, " After seeing the Battersea Park home signal in the off position I turned round in the van and picked up my train book to make some entries. I was standing up making those entries when there was a terrific crash and I was thrown violently off my feet against a partition. I received a knock on the right temple and shoulder and was momentarily stunned and found myself in a heap in the middle of the floor. I pulled myself together and collected my fog signals and red flag and got down on to the ballast . . . I noticed that the Pouparts Junction advanced starting and Battersea Park distant signals were still off. I told the porter to go forward and render assistance and stop any oncoming trains from the Victoria direction. I did not see anything of the train in front until after I alighted from my brake after the crash. I was under the impression that it was a down train."

Colonel Mount: " How did you come to think that?"

Adamson: " Well, that was my first impression." He added that his train after leaving Clapham Junction did not get up to full speed. He felt a full application of the brakes just before the impact. He could not give an estimate of the speed but said, " We were hoping to do the section from Clapham Junction to Victoria in 5½ min. —a distance of 2 miles 57 chains."

Replying to Mr. Benstead, Adamson said that Battersea Park home signal was very high. There was a fairly sharp curve coming round from Pouparts and he did not think it would be possible to see a train standing at the home signal. Adamson said that the signal was much more visible than a train standing at it because the signal stood so high. The signal came into view over the bridge girders and a train would be hidden by them.

Colonel Hall: " Are you quite sure that the Battersea Park ' distant ' was off?"

Adamson: " It was off when I saw it. I did not see any movement of the signal at all. It was still off when I got down from my van to go to the signal box. I went to the signal box and had a conversation with the signalman and then I returned to my van but I do not remember how I got back."

Adamson, replying to Mr. Roberts, of the Electrical Engineers Department, said that the motorman had proceeded with caution from Clapham to Pouparts and then he speeded up but he felt the brakes go on just prior to the collision.

After this evidence, Colonel Mount said that he had discussed the case with the company's officials and representatives of the union and, having heard what happened and had a certain amount of evidence, and inspected the site on the morning of the accident and on Monday night last, and having inspected the signal box, he had come to the conclusion that, for reasons already stated, it would be desirable to hear the rest of the evidence, or a greater part of it, in private. His report would be submitted to the Minister and would be made public in due course.

The guard of the standing train was killed, and the driver of the oncoming train, being injured and still in hospital, could not give evidence.

XUM

NOTES AND NEWS

Maze Hill Station, Southern Railway.—Maze Hill station has been renamed Maze Hill (for National Maritime Museum).

Electric Lighting at Beverley.—The L.N.E.R. proposes to introduce a system of electric lighting at Beverley station.

George Lane Station, South Woodford.—The L.N.E.R. announces that "George Lane for South Woodford" station is to be renamed "South Woodford (George Lane)."

Collision Near Victoria Station, S.R.—On April 4 an empty electric train returning to Ebury Bridge sidings, Victoria station, collided with a shunting engine. The driver of the electric train received fatal injuries.

Tettenhall Station.—The G.W.R. station at Tettenhall, which was closed in October, 1932, is to be re-opened and extended to deal with agricultural traffic for the Royal Agricultural Show at Wrottesley Park, Wolverhampton, from July 6 to 10.

Collision Near Sevenoaks, S.R.—On April 4 two ballast trains were in collision just outside Pol Hill tunnel, between Knockholt and Dunton Green, Southern Railway. The line was completely blocked for some hours and main line traffic was diverted through Swanley and Otford.

Faster Freight Trains, L.M.S.R.—The L.M.S.R. has just accelerated 16 daily freight trains by a total of 5 hr. 51 min. These accelerations range from 10 to 52 min. a train, and include services such as Aberdeen-Perth, Carlisle-Glasgow, Leicester-Manchester, Leeds-Carnforth, Lancaster-Skipton, and Coalville-Peterborough.

Largest Order ever Placed with British Rolling-Stock Builders.—Details are given on our Contracts and Tenders page this week of orders to a total value of over £3,000,000 placed by the London Passenger Transport Board for new rolling stock. The Birmingham Railway Carriage & Wagon Co. Ltd. is to build 250 of the coaches, and the share allocated to the Metropolitan-Cammell Carriage & Wagon Co. Ltd., consisting of 500 coaches, represents the largest order ever placed with any rolling-stock builder in this country.

New Vessels for Isle of Wight Services.—As recorded on our Contracts and Tenders page in this issue, Wm. Denny & Bros. Ltd. is to build a motorship for the Southern Railway Lymington-Yarmouth (Isle of Wight) service, and John I. Thornycroft & Co. Ltd. is to construct a motorship for the Southampton, Isle of Wight & South of England Royal Mail Steam Packet Co. Ltd., to be used mainly on the Southampton-Cowes service. Both vessels are to have the Voith-Schneider system of propulsion and accommodate motorcars as well as passengers.

Accident at Bow Station, L.M.S.R.—On April 1, during a dense fog, a collision occurred between two passenger trains at Bow station, as a result of which fifteen persons were injured. The 7.17 a.m. from Bow to Broad Street, on which passengers were entraining, was run into from the rear by the 7.28 a.m. empty train from Bow to Broad Street. The Ministry of Transport inquiry was held by Colonel Woodhouse on April 6.

Metropolitan Assented Stock.—Glyn, Mills & Co., the trustee and registrar under the trust deed relating to the Metropolitan Assented Stock constituted by Section 89 of the London Passenger Transport Act, 1933, announces that out of the instalment of interest received on the London Transport C Stock held under such trust deed a distribution, on April 14, of 1 per cent. actual (less tax) on such assented stock (on account of interest for the year ending June 30, 1937) will be made to holders registered on March 30.

May Timetable Alterations.—In the review of the May timetable alterations appearing in last week's issue, we omitted to mention, among the other changes of remark, the acceleration of the 10.5 a.m. express from Northampton to London, whereby the 46.7 miles from Bletchley to Euston will be covered in 46 min. start to stop; and the 9.5 a.m. from Euston to Wolverhampton, which will run over the 60·4 miles from Willesden to Northampton in 60 min. The two portions of the express now due in Euston at 8.10 p.m. will be retimed to leave Crewe at 5 p.m. and 5.5 p.m., not at 5.5. p.m. and 5.10 p.m. as was shown in error. The arrival times at Euston will be as stated. We are indebted to Mr. G. H. Loftus Allen for this further information.

Railway Photographic Exhibition at Croydon.—A fine collection of photographs of international motive power units and trains was shown recently at Kennards Limited, North End, Croydon. This exhibition, which was arranged by Mr. S. F. Fahey, covered a large number of countries and a wide range of railway subjects. Photographs of modern locomotives—some of streamline type—gave a good idea of the latest developments in this direction in European, American, and Asiatic countries. Some striking views of express trains in motion were shown, and amongst them those taken in New Zealand were particularly commendable. New stations, the interior appointments of some of the newest passenger vehicles, and modern rolling-stock were among the subjects of some United States of America studies. Among miscellaneous items were illustrations of diesel expresses, interiors of locomotive cabs, and Swiss and U.S.A. electric trains. A colourful series of travel posters was an attractive side line. The cream of the collection was undoubtedly a splendid set of framed lithographic plates of famous New York Central & Pennsylvania Railroad trains.

Transfer of Government Concessions to the Central Uruguayan Railway Company.—A decree was signed in Monte Video on April 3, authorising the transfer to the Central Uruguayan Railway Company of Government concessions held by subsidiary extension companies and the North Eastern of Uruguay Railway Company. In the event of the Central Uruguayan Railway Company purchasing these companies, the decree removes all Uruguayan obstacles to the projected financial reconstruction scheme of the Central Uruguayan Railway group, states a Reuters message.

L.N.E.R. Musical Society.—At the concert in the Hamilton Hall, Liverpool Street, on March 23, the chair was taken by Mrs. J. C. L. Train, wife of the Assistant Engineer, Southern Area, L.N.E.R. Amongst those present were:—

Sir Chas. A Batho, Bart.; Messrs. O. H. Corble, E. L. Hawkins, W. H. Hyde, R. J. M. Inglis, J. McLaren, L. H. K. Neil, C. H. Newton, R. R. Pettit, M. D. Robinson, T. H. Seaton, Percy Syder, J. C. L. Train, and Capt. E. F. Warren.

The music was provided by the society's full symphony orchestra and the London section of the male voice choir, with Joyce Newton, contralto, and Henry Cummings, baritone. The concert was conducted by Mr. Leslie Woodgate; Mr. Sydney Harrington, F.R.C.O., and Miss Grace Shearer were at the piano.

The Science of Lighting.—Mr. Arthur Cunnington, Assistant for Lighting to the Chief Engineer of the Southern Railway, who is this year President of the Illuminating Engineering Society, spoke recently at the annual dinner of the society in response to a toast proposed by Mr. Grey Wornum, F.R.I.B.A. He expressed the hope that the expansion of the illuminating engineering movement would lead to a more adequate recognition of the importance of a lighting engineer's job, which was much more of an exact science than was at one time supposed. Mr. Cunnington also referred to the popularisation of lighting technique by recent articles in the daily press and pointed out that, although these served a useful purpose, they also had their drawbacks. He himself had suffered much from amateurs in illuminating engineering, and the dissemination of popular hints rather tended to make amateurs regard themselves as experts.

Severn Bridge Proposal.—A conference at Cardiff, representative of local authorities of South Wales and Monmouthshire and the West of England, adopted on March 31 a resolution asking the Government to give immediate attention to the question of constructing a bridge over the Severn, particularly

in view of the projected Government schemes in South Wales, stating that the proposed bridge would be an important link in any scheme of national defence, that its construction would provide easy access for transport and trade between South Wales and the West of England, and provide a large amount of work for the unemployed in the Special Areas; urging the Government to proceed with the scheme as a matter of urgency and to bear the whole cost, as the authorities in South Wales were not in a position to make any contribution; and asking that the Prime Minister and the Minister of Transport should receive a deputation at an early date.

A Railway Officer's Address to Poplar Rotary Club.—Mr. Percy Syder, London City Manager, L.N.E.R., recently addressed the Rotary Club of Poplar on the work of his office. Describing the traffic handled in connection with the city markets, Mr. Syder said that no fewer than 1,400 trucks of foodstuffs were received daily between midnight and 3 a.m. Moreover, in a normal year approximately 3,000 tons of rhubarb was received, and at the height of the season about 30 tons of flowers reached London nightly from the Spalding area. Reference was also made to the work of the London area ticket and parcel offices; these handled over 3½ million packages each year. Mr. Syder further commented on the various facilities, such as the "arrow," container, and train ferry services, offered to the trading community.

Progress of Railway Bills.—The Great Western Railway Bill, which was read the third time and passed in the House of Commons on March 24, was read a first time in the House of Lords on March 25 and referred to the Examiners. The L.N.E.R. and Southern Railway Bills, as amended, were considered in the House of Commons on Wednesday, April 7, and ordered for third reading. The L.M.S.R. unopposed Scottish Provisional Order, of which the preamble was proved on March 10, is to come before the Examiners in the House of Lords on April 15 as the L.M.S.R. Order Confirmation Bill.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 13th Week			Totals to Date		
	1937	1936	Inc. or Dec.	1937	1936	Inc. or Dec.
L.M.S.R. (6,877 mls.)	£	£	£	£	£	£
Passenger-train traffic...	452,000	448,000	+ 4,000	5,282,000	4,933,000	+ 349,000
Merchandise, &c. ...	458,000	521,000	− 63,000	6,198,000	6,168,000	+ 30,000
Coal and coke ...	222,000	237,000	− 15,000	3,690,000	3,611,000	+ 79,000
Goods-train traffic ...	680,000	758,000	− 78,000	9,888,000	9,779,000	+ 109,000
Total receipts	1,132,000	1,206,000	− 74,000	15,170,000	14,712,000	+ 458,000
L.N.E.R. (6,320 mls.)						
Passenger-train traffic...	310,000	300,000	+ 10,000	3,489,000	3,284,000	+ 205,000
Merchandise, &c. ...	338,000	358,000	− 20,000	4,259,000	4,258,000	+ 1,000
Coal and coke ...	219,000	218,000	+ 1,000	3,348,000	3,365,000	− 17,000
Goods-train traffic ...	557,000	576,000	− 19,000	7,607,000	7,623,000	− 16,000
Total receipts	867,000	876,000	− 9,000	11,096,000	10,907,000	+ 189,000
G.W.R. (3,738½ mls.)						
Passenger-train traffic...	190,000	190,000	—	2,204,000	2,070,000	+ 134,000
Merchandise, &c. ...	175,000	207,000	− 32,000	2,478,000	2,466,000	+ 12,000
Coal and coke ...	83,000	96,000	− 13,000	1,493,000	1,441,000	+ 52,000
Goods-train traffic ...	258,000	303,000	− 45,000	3,971,000	3,907,000	+ 64,000
Total receipts	448,000	493,000	− 45,000	6,175,000	5,977,000	+ 198,000
S.R. (2,153 mls.)						
Passenger-train traffic...	289,000	273,000	+ 16,000	3,420,000	3,169,000	+ 251,000
Merchandise, &c. ...	59,000	66,500	− 7,500	737,500	786,000	− 48,500
Coal and coke ...	31,000	28,500	+ 2,500	442,500	473,000	− 30,500
Goods-train traffic ...	90,000	95,000	− 5,000	1,180,000	1,259,000	− 79,000
Total receipts	379,000	368,000	+ 11,000	4,600,000	4,428,000	+ 172,000
Liverpool Overhead ... (6½ mls.)	1,268	1,169	+ 99	15,292	14,474	+ 818
Mersey (4½ mls.) ...	4,756	4,296	+ 460	55,623	53,385	+ 2,238
*London Passenger Transport Board ...	584,200	557,800	+ 26,400	22,354,300	21,724,800	+ 629,500
IRELAND						
†Belfast & C.D. pass. (80 mls.)	3,042	1,858	+ 1,184	23,058	23,660	− 602
,, ,, goods	425	657	− 232	6,553	7,526	− 973
,, ,, total	3,467	2,515	+ 952	29,611	31,186	− 1,575
Great Northern pass. (543 mls.)	14,200	8,400	+ 5,800	108,600	103,100	+ 5,500
,, ,, goods	8,900	12,250	− 3,350	119,900	134,300	− 14,400
,, ,, total	23,100	20,650	+ 2,450	228,500	237,400	− 8,900
Great Southern pass. (2,075 mls.)	40,088	30,422	+ 9,666	361,597	353,941	+ 7,656
,, ,, goods	40,669	45,924	− 5,255	539,618	553,071	− 13,453
,, ,, total	80,757	76,346	+ 4,411	901,215	907,012	− 5,797

* 40th week † 14th week Easter Monday, 1937

British and Irish Railway Stocks and Shares

Stocks	Highest 1936	Lowest 1936	Prices April 7, 1937	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	64¼	45½	57½	−1½
5% Con. Prefce. ...	126½	116¾	111½	+1
5% Red. Pref. (1950)	113	108½	110½	—
4% Deb.	119½	110½	105½	+½
4½% Deb.... ...	121	114	108	—
4½% Deb.... ...	129	121	115½	+1
5% Deb.	141	134	126½	+1
2½% Deb.... ...	79⅛	74	66½	+1
5% Rt. Charge ...	136½	130	124	+2½
5% Cons. Guar. ...	135¼	127¾	119½	+1
L.M.S.R.				
Ord.	35⅝	17	29½	−½
4% Prefce. (1923)	83	52½	74½	−½
4% Prefce. ...	92¾	81	83	—
5% Red. Pref. (1955)	109¼	103¼	103½	—
4% Deb.	111¾	105 9/16	102½	+½
5% Red. Deb. (1952)	119⅝	115½	113½	—
4% Guar. ...	106¾	101⅝	100	+1
L.N.E.R.				
5% Pref. Ord. ...	14	9	10	—
Def. Ord.	7¼	4¾	5	—
4% First Prefce.	79¼	55¼	67	−1
4% Second Prefce.	31⅞	18¼	24	−½
5% Red. Pref. (1955)	100½	77¾	91	—
4% First Guar. ...	104½	98¾	94½	+1
4% Second Guar.	99	90	87½	+½
3% Deb.	85¾	79	76½	+½
4% Deb.	109¾	104½	101	+½
5% Red. Deb. (1947)	116¼	110½	107½	—
4½% Sinking Fund Red. Deb.	111½	107½	107½	—
SOUTHERN				
Pref. Ord.... ...	98¾	82½	88½	−1½
Def. Ord.	27⅝	20⅛	22½	−1
5% Pref.	120¾	118½	109	+½
5% Red. Pref. (1964)	119¾	115¼	111½	—
5% Guar. Prefce.	136	129½	119½	+1
5% Red. Guar. Pref. (1957)	120	115¾	112½	—
4% Deb.	117 13/16	109½	104	+½
5% Deb.	140	134	124½	—
4% Red. Deb. 1962–67	116½	110	108	—
BELFAST & C.D.				
Ord.	9	4½	4	—
FORTH BRIDGE				
4% Deb.	107	105	102½	—
4% Guar. ...	107 5/16	104	101½	+1
G. NORTHERN (IRELAND)				
Ord.	19½	9¾	10	—
G. SOUTHERN (IRELAND)				
Ord.	63	41	48½	—
Prefce.	65	46	54	−1
Guar.	97¼	81	78	−½
Deb.	99¾	83¼	90⅜	+⅜
L.P.T.B.				
4½% "A" ...	127¾	121	113½	—
5% "A"... ...	138¼	133½	124½	—
4½% "T.F.A." ...	111½	108⅛	106	—
5% "B"... ...	131¾	123¾	119½	—
"C"	112½	93	89½	−½
MERSEY				
Ord.	40¾	23	33½	—
4% Perp. Deb. ...	103	98	99	—
3% Perp. Deb. ...	78	74⅝	75½	—
3% Perp. Prefce.	68⅞	63¼	62½	—

LEGAL AND OFFICIAL NOTICES

In the Court of the Railway Rates Tribunal.

Road and Rail Traffic Act, 1933.

Agreed Charges.

NOTICE IS HEREBY GIVEN that Applications for the approval of Agreed Charges under the provisions of Section 37 of the Road and Rail Traffic Act, 1933, short particulars of which are set out in the Schedule hereto, have been lodged with the Railway Rates Tribunal.

The Procedure to be followed in regard to the inspection of the said Applications and the filing of Notices of Objections is that published in the "London Gazette" of 28th July, 1936.

Printed copies of the Procedure can be obtained from the Railway Rates Tribunal, Bush House, Aldwych, London, W.C.2.

Notices of Objection to any of the said Applications must be filed on or before the 30th day of April 1937.

A copy of each Application can be obtained from Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, 35, Parliament Street, Westminster, London, S.W.1, price 1s. post free.

T. J. D. ATKINSON,
Registrar.

6th April, 1937.

Number of Application	Name of Trader and General Description of Traffic
1937—No. 177	LACRINOID PRODUCTS LIMITED, Gidea Park Works, Stafford Avenue, Gidea Park, Essex; Bakelite Ware, etc.
1937—No. 178	ASTON BROS. LTD., Hebden Bridge; Clothing.
1937—No. 179	UNITED WATER SOFTENERS LIMITED, Permutit House, Gunnersbury Avenue, London, W.4; Domestic Water Softening Plant and Materials, etc.
1937—No. 180	SWEARS & WELLS LIMITED, Britannia House, 16/17, Old Bailey, London, E.C.4; Furniture, Carpets, Clothing, Drapery and General Stores Wares, etc. (*Applicable also to traffic consigned by five Associated or Subsidiary Companies.*)
1937—No. 181	REA VALLEY FOODS LIMITED, 8, Harrington Street, Liverpool, 2; Tinned Fruits, Preserved Hams, Pork and Beans.
1937—No. 182	CO-OPERATIVE WHOLESALE SOCIETY LIMITED, 1, Balloon Street, Manchester; Hosiery.
1937—No. 183	LAWLEY'S LIMITED, 36, Golden Square, London, W.1; Earthenware.
1937—No. 184	SPRING & CO. LTD., Brigg, Lincolnshire; Bottled and Canned Fruit, Jam, Fruit Cordials, British Wines, etc.
1937—No. 185	F. A. BOBY LIMITED, Pembroke; Rabbits (dead).
1937—No. 186	RICHARD & CO. LTD., Aldersgate House, London, E.C.1; Clocks.
1937—No. 189	CANDY & CO. LTD., Heathfield, Newton Abbot, S. Devon; Fireclay Ware, Tile Slabs and Kerbs, Glazed Bricks and Tiles, Firebricks and Firebacks.
1937—No. 190	THE DISTRIBUTORS AND TRANSPORTERS LIMITED (Messrs. Unilever's Distributing Organisation), Unilever House, Blackfriars, London, E.C.4; Soap, Margarine, Lard Compounds and Edible Fats, etc. (*Applicable to traffic consigned by four Associated or Subsidiary Companies.*)
1937—No. 191	JAMESONS CHOCOLATES LIMITED, Willoughby Lane, Tottenham, London, N.17; Confectionery, etc. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 192	JONES BROS., The Willows, Edward Street, Oswestry; Sheep for slaughter.
1937—No. 193	J. LOVELL & SON LTD., Avon Paper Mills, Linlithgow; Paper.
1937—No. 194	ALBERT E. REED & CO. LTD., Maidstone, Kent; Waste Paper.
1937—No. 195	STANDARD YEAST CO. LTD., Lamb Distillery, Church Street, Chiswick, London, W.4; Yeast and Bakers' Sundries. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 196	WIGGINS, TEAPE AND ALEX PIRIE (SALES) LIMITED, 46/58, Mansell Street, Aldgate, London, E.1; Paper. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 197	ACKLAND & PRATTEN LIMITED, Portland Works, Bristol, 2; Paper, Stationery, etc.
1937—No. 198	BRITISH NATIONAL DOLLS LIMITED, 4-8, Hutton Grove, Finchley, London, N.12; Dolls, etc.
1937—No. 199	THE CITY AND PROVINCIAL STORES LIMITED, Atlantic Mills, Droylsden Road, Newton Heath, Manchester, 10; Furniture and Household Requisites.
1937—No. 200	WM. GAYMER & SON LTD., Attleborough, Norfolk; Cider, etc.
1937—No. 201	C. & J. HAMPTON LIMITED, Record Works, Sheffield, 9; Vices and Cramps, Wrenches, Lifting Jacks, Steel, Metal Planes, Machine Tool Stands, etc.
1937—No. 202	F. W. HARMER & CO. LTD., St. Andrew's Works, Norwich; Clothing, Floor Coverings, Drapery, Boots and Shoes, etc.
1937—No. 203	IMPERIAL SERVICE WINE ASSOCIATION LIMITED, 30, Mark Lane, London, E.C.3; Wine and Spirits.
1937—No. 204	IOCO RUBBER & WATERPROOFING CO. LTD., Netherton Works, Anniesland, Glasgow, W.3; Cotton Goods, India Rubber Goods, Waterproof Clothing and Paper, etc.
1937—No. 205	HENRY LISTER & SONS LTD., Troydale Mill, Pudsey, Yorks; Cloth (Textiles).
1937—No. 206	PETER LUNT & CO. LTD., Aintree, Liverpool, 10; Candles, Soap, Metal and Floor Polishes, Insecticides, Waterglass, etc.
1937—No. 207	LOUIS MARX & CO. LTD., Waddam's Pool Works, Dudley; Toys.
1937—No. 208	WITCHAMPTON BY-PRODUCTS LIMITED, Riverside Works, Weybridge; Firelighters.
1937—No. 209	J. W. MYERS LIMITED, Saville Street Works, Saville Street, Leeds, 1; Caps and Clothing. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 210	THE STANDARD YEAST CO. LTD., Lamb Distillery, Church Street, Chiswick, London, W.4; Yeast and Bakers' Sundries. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 211	SWEARS & WELLS LIMITED, Britannia House, 16/17, Old Bailey, London, E.C.4; Furs, Gowns and Mantles. (*Applicable also to traffic consigned by three Associated or Subsidiary Companies.*)
1937—No. 212	TURNER & SON LTD., Goldsmith Street, Nottingham; Cake.
1937—No. 213	WASDELL LIMITED, Holdford Road Works, Witton, Birmingham, 6; Motor Car and Motor Cycle Wings and Mudguards.
1937—No. 214	BALLITO HOSIERY MILLS LIMITED, Hatfield Road, St. Albans; Hosiery, etc.
1937—No. 215	CARRICK'S OF CUMBERLAND, Low Row, near Carlisle; Cooked Meats, Cream, Cheese, Fish and Meat Pastes, etc.
1937—No. 216	CITY AND PROVINCIAL STORES, Atlantic Mills, Manchester; Clothing, Drapery and General Stores Wares.
1937—No. 217	COHEN & WILKS LIMITED, Aquatite Mills, Derby Street, Cheetham, Manchester; Clothing, etc., ex Leeds.
1937—No. 218	COHEN & WILKS LIMITED, Aquatite Mills, Derby Street, Cheetham Manchester; Clothing, etc., ex Manchester.
1937—No. 219	J. DARNELL & SON LTD., 76 to 94, Kingsland Road, London, E.2; Boots and Shoes.
1937—No. 220	FARMA CREAM PRODUCT CO. LTD., 23/25, Prince of Wales Crescent, London, N.W.1; Butter, Cream, Milk Powder, Condensed Milk.
1937—No. 221	GREENGATE & IRWELL RUBBER CO. LTD., Irwell Works, Ordsall Lane, Salford, Manchester; Waterproof and Showerproof Coats, Light Electric Cable, Belting, Rubber Goods, Gaiters, Leggings and Slippers, Ebonite Sheets and Cylinders.
1937—No. 222	F. W. HARMER & CO. LTD., St. Andrew's Works, Norwich; Boots, Clothing, Hosiery, Mantles, Piece Goods and Shirts.
1937—No. 223	JOHN MARTIN LIMITED, Commerce House, 29-55, Middlesex Street, London, E.1; Mantles and Frocks. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 224	RICHMOND SAUSAGE CO. LTD., 7-11, Linacre Road, Litherland, Liverpool, 21; Sausages.
1937—No. 225	BENJAMIN RUSSELL & SONS LTD., Eastern Boulevard, Leicester; Hosiery.
1937—No. 226	SOMERVELL BROS. LTD., Kendal; Boots, Shoes, etc.
1937—No. 227	STEAD & SIMPSON LIMITED, Belgrave Gate, Leicester; Boots and Shoes.
1937—No. 228	S. & J. WATTS & CO., Manchester; Clothing, Drapery and General Stores Wares.
1937—No. 229	W. & J. AVERY LIMITED, Soho Foundry, Birmingham; Machines and Machinery, Weights, etc.
1937—No. 230	JOHN KAY LIMITED, Doreth House, Cowper Street, London, E.C.2; Groceries, Preserves and Provisions, Eggs, Fruit, Cleansing Powders, Hardware, Polishes, Tobacco and Cigarettes, Matches, Razor Blades, Salines, etc.
1937—No. 231	NEWTON MILL LIMITED, 7, Paternoster Square, London, E.C.4; Stationery and Paper.
1937—No. 232	JOHN F. RENSHAW & CO. LTD., Mitcham, Surrey; Confectionery, Shelled Almonds.
1937—No. 233	SPILLERS LIMITED, 40, St. Mary Axe, London, E.C.3; Biscuits, Dog and Hardbread; Bird Seed; Condiments, Biscuit Meal for Dog or Poultry Feeding; Poultry and Game Foods, etc.
1937—No. 234	ACHILLE SERRE LIMITED, Blackhorse Lane, Walthamstow, London, E.17; Dyed and Cleaned Goods, Tricycle Carriers, Tyres, etc. (*Applicable also to traffic consigned by one Associated or Subsidiary Company.*)
1937—No. 235	C. & J. CLARK LIMITED, Street, Somerset; Boots, Shoes and Leather.
1937—No. 236	VITACREAM LIMITED, 48, Mark Lane, London, E.C.3; Butter Flavour, Chocolate-coverture, Egg-Whites, Vitacream, Vitacurd, etc.

Assam Bengal Railway Co., Ltd.

THE Directors are prepared to receive Tenders for the supply of:—

1,250,000 DOG SPIKES (approximately 364 tons).

Tenders are being simultaneously called for in India.

Specification and Forms of Tender can be obtained at the Company's Offices, 56, Victoria Street, Westminster, S.W.1.

For each set of Tender Documents a charge of £1 1s. 0d. will be made, which cannot, under any circumstances, be returned.

Tenders addressed to the Chairman and Directors of the Assam-Bengal Railway Co. Ltd., in a sealed envelope marked "Tender for Dog Spikes," with name of firm tendering, must be lodged not later than 10 a.m. on the 26th day of April, 1937.

Tenders must hold good until Noon in London on the 10th May, 1937.

The Directors reserve the right to reject any Tender without assigning a reason, and do not bind themselves to accept the lowest Tender, the whole of a Tender or any Tender.

The Directors also reserve the right to divide the order.

By Order of the Board,
W. H. J. GORE,
Secretary.

56, Victoria Street,
S.W.1.
Friday, 9th April, 1937.

CIVIL ENGINEER, 31, married, B.Sc. 1st Hons. (Glasgow), A.M.Inst.C.E., 3½ years' apprenticeship with good general civil engineering training, eight years with British-owned railway abroad with very general experience, including administration, maintenance, bridge testing, water, &c., &c. Fluent Spanish and knowledge of French. Intelligent hard worker. Holds high position at present, but salary unsatisfactory as company still retrenching. Excellent references. Requires position with prospects, preferably abroad, South Africa, &c. Free and in England July this year. Present reply will take about two months.—Box No. 7, c/o THE RAILWAY GAZETTE, 33, Tothill Street, London, S.W.1.

Legal and Official Notices—*continued*

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following posts :—

ASSISTANT WORKSHOPS SUPERINTENDENT, also an ASSISTANT LOCOMOTIVE SUPERINTENDENT, required for the Mechanical Department of the Kenya and Uganda Railways and Harbours, in each case for a tour of 24 to 48 months in the first instance. The posts are pensionable, but admission to pensionable status will only be considered after five years' satisfactory service. Free quarters and passages with liberal leave on full salary.

M/5121. ASSISTANT WORKSHOPS SUPERINTENDENT. Salary £600—£30—£720 a year. Candidates, not over 35 years of age, must have received a good general education, have been trained in the Workshops of a British Railway, and have since filled a position of responsibility in the workshops of a Railway of recognised standing. They must be well versed in modern railway workshop organisation processes, and production tools, and have a sufficient knowledge of costing to be able to undertake cost analysis work.

M/5122. ASSISTANT LOCOMOTIVE SUPERINTENDENT. Salary £480—£20—£600—£30—£720 a year, but a higher commencing salary may be considered if the qualifications of an applicant justify it. Candidates, aged 28-38, must have received a sound practical training in Locomotive working with a British Railway and have subsequently filled a position of responsibility in the Running Department of a Railway of recognised standing. They must be of good education, both generally and on the technical side of engineering, and preferably be Associate Members, or Members of an Engineering Institution.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting the reference number against the appointment for which application is made.

CONTRACTS AND TENDERS

Wm. Denny & Bros. Ltd. has received an order from the Southern Railway for a new ferryboat to be 148 ft. long, 36 ft. wide, and with 5 ft. 8 in. draught, to operate between Lymington and Yarmouth, Isle of Wight. The new vessel will have the Voith-Schneider system of propulsion, rendering the use of rudders unnecessary. The machinery will probably consist of two sets of 200-b.h.p. diesel engines, giving the vessel a speed of 10 knots. Accommodation will be provided for about 250 passengers and the main deck will carry approximately 16 average-sized cars. Wm. Denny & Bros. Ltd. has also nearing completion the ps. *Ryde* for the Southern Railway's Portsmouth-Ryde service.

The Siamese State Railways Administration has placed the following orders to the inspection of Messrs. Sandberg :—

Bochumer Verein A.G., 54 tons of spring steel.
Ruhr Stahl A.G., quantity of tyres.
Hungarian Railway Carriage & Machine Works, 80 sets of buffers.

The Vulcan Foundry Co. Ltd. has received orders from the Government of India, Railway Board, for the supply of the following I.R.S. broad gauge locomotives during 1937-38 : Four XU class and four XV class for the East Indian Railway and four XL class and four XW class for the North Western Railway.

The Birmingham Railway Carriage & Wagon Co. Ltd. has received orders from the Crown Agents for the Colonies for 27 metre-gauge four-wheeled brake vans for the Kenya & Uganda Railways and 50 sets of ironwork required for bogie covered goods wagons for the Nigerian Government Railways.

The Crown Agents for the Colonies have placed orders with Nasmyth, Wilson & Co. Ltd. for one boiler for 201 class locomotive and with the North British Locomotive Co. Ltd. for one boiler for 181 class locomotive, Gold Coast Government Railway.

The Soc. Metallurgique D'Enghien St. Elio, through L. le Personne & Co. Ltd., has received an order from the Leopoldina Railway for 10 underframes required for 20-ton bogie open wagons and six underframes required for 20-ton bogie covered goods wagons.

D. Wickham & Co. Ltd. has received an order from the Argentine State Railways for two petrol-driven light railcars.

New Rolling Stock for London Transport.

To meet the increased demands for rolling stock in connection with the extensions now in progress, the London Passenger Transport Board has placed orders for 750 new cars, costing over £3,000,000, for delivery extending over the next two years. These cars, which will be of all-steel construction, embody a number of new features which have been adopted as the result of experience gained in the running of the four six-car trains recently built for experimental service by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., and which were described in the December 11 issue of THE RAILWAY GAZETTE. Of the new cars, 500 are to be built by Metropolitan-Cammell Carriage & Wagon Co. Ltd., whose share of the work represents the largest order which has ever been placed with any rolling-stock builder in this country ; and the remaining 250 cars will be built by the Birmingham Railway Carriage & Wagon Co. Ltd. All the coaches to be built by the Metropolitan-Cammell Company will be motor cars and will comprise 459 of the driving type and 41 of the non-driving type, whilst those to be supplied by the Birmingham Railway Carriage & Wagon Company will consist of 74 non-driving motor cars and 176 trailer cars.

R. Y. Pickering & Co. Ltd. has received an order from the Central Uruguay Railway for 15 underframes required for four-wheel wagons.

John I. Thornycroft & Co. Ltd. has received an order from the Southampton, Isle of Wight & South of England Royal Mail Steam Packet Co. Ltd. for a passenger vessel with very extensive motor-car accommodation, and to be employed mainly on the Southampton-Cowes service. The new vessel, which will have a length on waterline of 195 ft., breadth 30 ft., and draught loaded 6 ft., is designed for a cruising speed of about 15 knots, and will be equipped with diesel engines of approx. 1,200 b.h.p. Voith-Schneider propulsion will be employed.

G. H. Sheffield & Co. (Engineers) Ltd. has received an order from the Birmingham Railway Carriage & Wagon Co. Ltd. for 128 Sheffield-Twinberrow wagon bogies fitted with Framwel axleboxes in connection with the contract for 50 underframes with bogies and 14 bogie covered goods wagons placed with the Birmingham Railway Carriage & Wagon Co. Ltd. by the Crown Agents for the Colonies for the Nigerian Government Railway, as reported in last week's issue.

Wertwaggon Vereinigte Westdeutsche Waggonfabriken A.G., through Gossell & Son Ltd., has received an order from the Central Argentine Railway for 50 semi-steel bogie convertible double-deck cattle wagons.

The Bengal & North Western and Rohilkund & Kumaon Railway Administrations have placed the following orders to the inspection of Messrs. Rendel, Palmer & Tritton :—

J. Baker & Bessemer Limited, 268 locomotive tyres for B. & N.W.R. and 60 pairs locomotive tyres for R. & K.R.
English Steel Corporation, 200 carriage and wagon tyres for B.N.W.R. and 100 carriage and wagon tyres for R. & K.R.
Carters (Merchants) Limited, 261 axles for locomotives, carriages and wagons for B. & N.W.R. and 27 axles for locomotives, carriages and wagons for R. & K.R.

Fried. Krupp A.G. has received an order to the inspection of Messrs. Rendel, Palmer & Tritton for 500 helical springs and 5,500 volute springs for the Bengal North Western and Rohilkund & Kumaon Railways.

Tenders are invited by the Agent, East Indian Railway, 105, Clive Street, Calcutta, receivable by April 23, for the supply of locomotive fittings required during the year 1937-38.

Tenders are invited by the North Western Railway of India, receivable by the Agent, Lahore, by April 21, for the supply of nine superheated boilers required for SP/S class 4-4-0 locomotives. Drawings are on view at the office of Hodges, Bennett & Co. Ltd., 16, Victoria Street, Westminster, S.W.1.

The South African Railways & Harbours Administration is calling for tenders (Contract No. 1226) for the supply and delivery of 250 four-wheeled fruit wagons with racks ; Type OR-20, for 3 ft. 6 in. gauge. Tenders should reach the Secretary to the Tender Board, South African Railways headquarter offices, Johannesburg, by May 25.

Railway Share Market

The new Stock Exchange account which began on Monday has not shown any large expansion of business. Sentiment was inclined to be affected by vague talk of a possible lowering of the American price of gold and by the reactionary tendency which developed in metal and commodity prices. British Government stocks were better and debentures and guaranteed stocks of the home railways were firmer in sympathy, but the junior stocks were dull and inclined to make lower prices, the past week's traffic receipts being regarded as disappointing in the market, although they amounted in the aggregate to £2,826,000, or £171,000 more than for the corresponding Easter Monday holiday week of last year.

L.M.S.R. ordinary was dull at 29¾ and the 4 per cent. preference and 1923 preference were neglected, although at 82½ and 74½ they offer quite attractive yields and there is a reasonable possibility of increased cover for their dividend requirements. So far this year the traffic position on the L.M.S.R. is the most encouraging among the main line railways, this company's aggregate increase being £458,000, which suggests the possibility of a larger payment on the ordinary stock if this rate of increase is maintained. There is, however, no means whereby an estimate of net receipts can be arrived at, and it is realised that costs of materials and expenses of the main line railways generally are likely to continue to rise. L.N.E.R. junior stocks were featureless but fractional gains were shown by the first and second guaranteed stocks. Great Western ordinary remained steady at 58. Southern preferred was lower at 88¾ as was the deferred at 22⅝, but subsequently both stocks were firmer on the past week's traffics, which were rather better than had been generally expected. London Transport "C" was dull at 89½. Nevertheless, the view appears to be gaining ground that this stock is now probably moderately valued.

Apart from Argentine stocks there was little activity reported in the foreign railway market. Central Argentine and B.A. Gt. Southern preference were steadier, but fractionally lower prices were made by B.A. Western and other ordinary stocks, with the exception of B.A. Gt. Southern which continued to benefit from talk of the possibility of a small dividend for the current year. B.A. Pacific consolidated debentures were better at 82, but the 5 per cent. (1912) debentures were lower at 49½. Cordoba Central first and second debentures moved in favour of holders. Elsewhere, San Paulo continued to be assisted by hopes that the dividend may be brought up to 5 per cent. tax free, and was firm at 98½. Canadian Pacific declined and American railroad stocks made lower prices in sympathy with the trend of New York markets.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1936-37	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1936	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1936	Prices: Lowest 1936	Prices: Apr. 7, 1937	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	834	4.4.37	21,680	+ 9,050	14	229,350	189,740	+ 39,610	Ord. Stk.	25	15¼	27	Nil
	Argentine North Eastern ..	753	3.4.37	8,027	— 451	40	347,014	311,687	+ 35,327	„	12	2	11	Nil
	Argentine Transandine ..	—	—	—	—	—	—	—	—	A. Deb.	54	45	93	4⅝
	Bolivar	174	Mar., 1937	6,100	— 1,500	13	17,200	19,750	— 2,550	6 p.c. Deb.	9	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	16	11½	16	3⅛
	Buenos Ayres & Pacific ..	2,806	3.4.37	123,573	+ 21,047	40	2,658,603	3,308,971	+ 349,632	Ord. Stk.	17½	6	13½	Nil
	Buenos Ayres Central ..	190	20.3.37	$125,400	+ $51,200	38	$5,488,200	$4,266,800	+ $1,221,400	Mt. Deb.	31½	11	38	Nil
	Buenos Ayres Gt. Southern	5,084	3.4.37	194,045	+ 48,804	40	5,998,964	5,264,316	+ 734,648	Ord. Stk.	31¾	13¾	33	Nil
	Buenos Ayres Western ..	1,930	3.4.37	61,787	+ 7,850	40	1,946,231	1,786,807	+ 159,424	„	29¾	11	27	Nil
	Central Argentine	3,700	3.4.37	177,084	+ 62,046	40	6,109,450	4,810,031	+ 1,299,419	„	32⅝₂	8¾	31½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	21	4½	15½	Nil
	Cent. Uruguay of M. Video	273	27.3.37	12,226	+ 736	39	483,820	423,039	+ 60,781	Ord. Stk.	7¾	3	11	Nil
	Do. Eastern Extn.	311	27.3.37	2,282	+ 352	39	90,688	78,958	+ 11,730	—	—	—	—	—
	Do. Northern Extn.	185	27.3.37	1,918	+ 406	39	63,205	55,335	+ 7,870	—	—	—	—	—
	Do. Western Extn.	211	27.3.37	933	— 112	39	40,380	34,754	+ 5,626	—	—	—	—	—
	Cordoba Central	1,218	3.4.37	28,410	+ 5,550	40	1,258,550	1,128,930	+ 129,620	Ord. Inc.	5	1	5½	Nil
	Costa Rica	188	Feb., 1937	17,026	+ 2,386	35	142,134	106,919	+ 35,215	Stk.	36½	32	37	5⅛
	Dorado	70	Feb., 1937	15,800	+ 3,500	9	31,100	25,600	+ 5,500	1 Mt. Db.	107	101½	104½	5¾
	Entre Rios	810	3.4.37	13,288	+ 4,134	40	518,906	434,498	+ 84,408	Ord. Stk.	17	6	14	Nil
	Great Western of Brazil ..	1,082	3.4.37	7,800	+ 300	14	115,900	133,600	— 17,700	Ord. Sh.	1/2	5/16	1/2	Nil
	International of Cl. Amer. ..	794	Feb., 1937	$523,550	+ $31,911	9	$1,040,129	$993,174	+ $46,955	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	1st Pref.	1/2	-/6	1/2	Nil
	La Guaira & Caracas ..	22½	Mar., 1937	5,680	+ 1,370	13	16,875	12,960	+ 3,915	Stk.	9	3	7½	Nil
	Leopoldina	1,918	3.4.37	25,490	+ 5,994	14	307,031	250,033	+ 56,998	Ord. Stk.	10½	3½	7	Nil
	Mexican	483	31.3.37	$533,000	+ $170,000	13	$4,083,700	$3,288,000	+ $795,700	„	1¼	1/4	1	Nil
	Midland of Uruguay ..	319	Feb., 1937	8,320	+ 26	36	69,193	57,159	+ 12,034	„	1½	1/8	1/2	Nil
	Nitrate	397	31.3.37	9,031	+ 535	13	47,333	44,465	+ 2,868	Ord. Sh.	63/6	41/9	2⅜	Nil
	Paraguay Central	274	3.4.37	$3,534,000	+ $652,000	40	$109,840,000	$90,998,000	+ $18,842,000	Fr. Li. Stk.	85	71	81	7
	Peruvian Corporation ..	1,059	Mar., 1937	85,920	— 1,250	39	730,807	703,226	+ 27,581	Pref.	15	9	12½	Nil
	Salvador	100	27.3.37	¢39,500	+ ¢7,500	39	¢889,508	¢755,246	+ ¢134,262	Pr. Li.Db.	18	16	22½	Nil
	San Paulo	153½	28.3.37	26,347	— 3,695	13	370,249	359,303	+ 10,946	Ord. Stk.	86	46½	98	2⁹/₁₆
	Taltal	164	Feb., 1937	3,440	— 1,130	35	27,930	28,485	— 555	Ord. Sh.	11⅝₂	14/—	11⅛	8⅞
	United of Havana	1,353	3.4.37	44,378	+ 3,834	40	1,031,215	918,382	+ 112,833	Ord. Stk.	3¼	1	4½	Nil
	Uruguay Northern	73	Feb., 1937	865	+ 61	36	8,461	6,528	+ 1,933	Deb. Stk.	5	3	9	Nil
Canada.	Canadian National ..	23,566	31.3.37	1,112,076	+ 199,559	13	8,995,437	8,055,954	+ 939,483	—	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	76	51	70	5¹¹/₁₆
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	104¾	99¾	97½	4⅛
	Canadian Pacific	17,223	31.3.37	801,400	+ 148,600	13	6,333,400	5,856,800	+ 476,600	Ord. Stk.	16¾	10¹⁵/₁₆	15	Nil
India.†	Assam Bengal	1,329	20.3.37	39,967	+ 4,746	48	1,314,048	1,234,207	+ 79,841	Ord. Stk.	87¾	82¼	74½	4
	Barsi Light	202	10.3.37	2,902	— 1,365	47	108,080	135,517	— 27,457	Ord. Sh.	77½	65½	59	8⁷/₁₆
	Bengal & North Western ..	2,107	20.3.37	89,988	— 6,124	22	1,410,768	1,345,585	+ 65,183	Ord. Stk.	319	292⅝	309	5¹⁵/₁₆
	Bengal Dooars & Extension	161	20.3.37	3,781	+ 64	48	126,389	135,800	— 9,411	„	127½	118	104½	5¼
	Bengal-Nagpur	3,268	20.3.37	220,800	+ 43,111	48	6,014,876	6,277,750	— 262,874	„	104	100¼	94½	4¼
	Bombay, Baroda & Cl. India	3,072	31.3.37	296,325	— 9,300	49	8,947,050	8,430,150	+ 516,900	„	114	110½	111½	5⅜
	Madras & Southern Mahratta	3,229	10.3.37	159,675	+ 2,998	47	5,242,383	5,081,840	+ 160,543	„	116½	108½	105½	7⁹/₁₆
	Rohilkund & Kumaon ..	572	20.3.37	18,942	— 2,284	22	275,425	271,248	+ 4,177	„	311	286	310	5¹⁵/₁₆
	South Indian	2,532	10.3.37	107,433	+ 2,738	47	3,775,678	3,699,872	+ 75,806	„	107½	102⅝₁₆	101½	5⅞
Various	Beira-Umtali	204	Jan., 1937	62,738	+ 1,539	17	268,806	254,392	+ 14,414	—	—	—	—	—
	Bilbao River & Cantabrian	15	Feb., 1937	1,646	— 506	9	2,682	3,470	— 788	—	—	—	—	—
	Egyptian Delta	620	20.3.37	6,616	+ 398	48	247,902	244,311	+ 3,591	Prf. Sh.	21¼	15⅜	15⅜	Nil
	Great Southern of Spain ..	—	—	—	—	—	—	—	—	Inc. Deb.	11½	1⅛	3½	Nil
	Kenya & Uganda	1,625	Feb., 1937	274,358	+ 24,224	9	563,494	483,510	+ 79,984	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	50½	37	46	7⅝
	Mashonaland	913	Jan., 1937	116,140	+ 18,269	17	489,820	410,904	+ 78,916	1 Mg. Db.	101½	101⅝₁₆	107	4¹¹/₁₆
	Midland of W. Australia ..	277	Feb., 1937	11,323	— 2,175	35	106,190	111,949	— 5,759	Inc. Deb.	97	93½	96	4⅛
	Nigerian	1,905	13.2.37	78,147	+ 30,207	46	2,186,523	1,681,204	+ 505,319	—	—	—	—	—
	Rhodesia	1,538	Jan., 1937	210,786	+ 30,327	17	875,434	756,444	+ 118,990	4 p.c. Db.	107	103½	109	3¹¹/₁₆
	South Africa	13,263	13.3.37	622,151	+ 53,655	50	30,463,742	28,569,267	+ 1,894,475	—	—	—	—	—
	Victoria	4,728	Nov., 1936	868,988	+ 45,953	21	3,995,540	3,959,297	+ 36,243	—	—	—	—	—
	Zafra & Huelva	112	Feb., 1937	13,311	+ 2,570	9	29,193	21,230	+ 7,963	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rates of exchange and not on the par value.